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The Hunterian Lectures

ON THE

PRINCIPLES AND TECHNIQUE OF THE OPERATIVE TREATMENT OF MALIGNANT DISEASE OF THE MOUTH AND PHARYNX.

Delivered before the Royal College of Surgeons of England on March 3rd and 5th, 1913,

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LECTURE II.[1]

Delivered on March 5th.

MR. PRESIDENT AND GENTLEMEN,—So far we have dealt entirely with problems connected with the cure of the disease, and have laid down the conditions which must be satisfied if cure is to be attained with any certainty. We now have to ask whether the technique at our disposal allows us to meet these requirements with a reasonable degree of safety to the patient. This chapter of the subject is concerned almost entirely with the infective complications of the operation. The primary operative risks, such as shock, hæmorrhage, and mechanical respiratory troubles, are so uncommon or so completely met by ordinary surgical measures that we need not consider them here.

THE DANGERS OF THE OPERATION.

The infective complications dangerous to life can be divided into two main classes: pulmonary infections and wound infections. Both of these are common and constant dangers in connexion with operations on the mouth; they are much more serious in operations on the pharynx.

I. LUNG COMPLICATIONS.

That these still constitute a serious danger cannot be doubted, though it is perhaps sometimes thought that they are greatly less frequent than formerly.

Septic pneumonia is the essential condition met with. It is particularly likely to lead to suppuration, with the formation of single or multiple abscess cavities with gangrenous walls. The pus from these has the same smell as an ulcerating epithelioma and all abscesses derived from the mouth and pharynx. The pneumonia is particularly fatal, and though I believe I have seen a few cases which have recovered, as a general rule the diagnosis brings with it the certainty of a fatal termination. Possibly operation on some of these cases of localised gangrene may be able to save a few. Two cases of post-operative gangrene of the lung in which I laid open the gangrenous focus were somewhat encouraging. In one, not, however, a mouth or throat case, the patient recovered; in the other the lung cleared up rapidly, but the patient died from a pyæmic focus elsewhere.

The causation of these pneumonias is a somewhat complex interaction of various factors, but a study of the evidence over a large number of cases and the effect of various prophylactic measures show that there are three processes at work. 1. The infection is derived from general sepsis of the mouth and from the septic ulceration of the growth. The extent of the ulceration is greatly influenced by the sepsis in the mouth, whether the growth is in the mouth or pharynx. 2. The lungs are irritated by the anæsthetic vapour and by blood. Probably the actual irritating material is mucus in which the anæsthetic is dissolved. The importance of the entry of blood alone has probably been greatly exaggerated. 3. The infective material is conveyed to the lungs by aspiration during the operation. Aspiration is favoured by any kind of respiratory obstruction.

There is one other mechanism I have omitted in this enumeration because it can be so easily and should be so rigidly excluded. This is the indiscriminate mopping out of the mouth and pharynx on account of the supposed necessities of the anæsthetist. It should on no account be allowed except under the most careful precautions, for by its means gross quantities of septic material are apt to be conveyed from the ulcer to the upper opening of the larynx, whence they are promptly aspirated into the lungs. In the few moments that elapse before the windpipe is opened it is scarcely ever necessary to sponge out the throat at all.

The importance of the different factors enumerated can be inferred from various clinical observations. In edentulous patients with but slightly ulcerated tumours pneumonia is scarcely to be feared. Accidental leakage past the pharynx or larynx plug during the operation is extremely dangerous. The influence of the anæsthetic is probably the least important factor. It is perhaps to it that the increase in the incidence of pneumonia with the length of operations is due. This increase is, however, seen only if the other factors are acting also. Short anæsthetics, even though all the other conditions are unfavourable, are very rarely followed by pneumonia.

The relative unimportance of entry of blood is shown by the occurrence of pneumonia after gland operations which are done before the primary growth is removed. These long and difficult operations are usually accompanied by great difficulty in maintaining a free airway and consequent excessive aspiration at the laryngeal opening. This is a strong argument against the gland operation being done first in cases with much ulceration.

The one precaution against pneumonia which I have found to be efficient is opening the larynx or treachea and plugging the airway higher up. I use it invariably for all cases except the smallest growths on the anterior part of the tongue. I find I have done a preliminary laryngotomy or tracheotomy more than 50 times. I have never seen any harm whatever come from it, and, on the contrary, a deal of good. Its advantages are numerous in addition to minimising the incidence of pneumonia: (*a*) The patient can be kept absolutely tranquil, breathing without effort and without coughing, so that the shock of the operation is greatly diminished by the absence of these dangerous and exhausting exercises. (*b*) It solves all difficulties of the anæsthetic. For these patients chloroform given through a laryngotomy tube is as nearly a perfect anæsthetic as we possess. (*c*) It greatly diminishes the risk of pneumonia. I have come to regard the gland operation done as a first stage as much more dangerous than the primary growth operation. In certain bad cases where the gland operation had to be done first I have done a preliminary laryngotomy and been much encouraged by the result. (*d*) It allows the complex operations of modern technique to be done deliberately and with the attention to detail they demand.

The procedure has no disadvantages. Laryngotomy, which should be reserved chiefly for mouth operations, can be done through a mere puncture which leaves an invisible scar, and takes three or four minutes. Tracheotomy should be used whenever the tube may have to be left in for some time. It takes a few minutes longer but is always quite easy. An interesting phenomenon is often observed in these cases, and that is the occurrence of periodic respiration after the tube has been put in and the preliminary apnœa has passed off. It is common in elderly patients and has no serious significance.

One important caution may be added, and that is that if there is the least reason to suspect any trouble whatever in breathing during the immediate post-operative period the tube should be left in. It can do no harm and may save the patient's life, as the shock of an attack of even partial asphyxia is very apt to be fatal in an enfeebled patient.

II. WOUND INFECTION.

This is little likely to be dangerous in the mouth, but immediately the anterior faucial pillars are passed the danger becomes a very serious one.

Acute septicæmia is not uncommon with large wounds of the pharynx. It generally begins at once and destroys the patient within a few days of the operation. Cellulitis is most serious with wounds low down in the pharynx. Wound infection from the mouth has certain marked and constant characteristics and tends to run a very definite course. All wounds which are allowed to come into contact with pharyngeal or oral mucus undergo necrosis of the surface with the formation of a definite slough. If the surface is quite open the infection does not tend to spread. The temperature is raised slightly and remains up for about a week, when separation of the sloughs with free suppuration

[1] Lecture I. was published in THE LANCET of April 19th, 1913, p. 1075.

begins. Usually for the first few days there is little or no pus formed. By the eighth day the temperature is usually quite normal, and by the tenth all sloughs have separated, leaving a clean granulating surface which is quite tolerant of the pharyngeal contents. It is this specific and constant course which accounts for the limitation of secondary hæmorrhage to the eighth, ninth, and tenth days. It is extremely rare for it to occur outside these limits. If there is any interference with the drainage from the wound, especially if there is a pocket into which the pharyngeal mucus drains, a progressive cellulitis may be set up with extension to the mediastinum and a necessarily fatal termination. It has long been known that attempts to close large pharyngeal wounds may be very dangerous, and that leaving such cavities widely open and plugging them decidedly diminishes the risks. It does not, however, abolish them, and they remain a serious danger.

Secondary hæmorrhage is nowadays of very little importance in wounds in the mouth, and when it occurs is easily dealt with. It is much more likely to occur in connexion with pharyngeal wounds. I have lost three cases from it, and as two of them would almost certainly have been cured of their disease but for this disastrous complication I have a great respect for it.

All these wound complications are likely to be underestimated if one's experience is limited to occasional operations. It is only when one has dealt with a series of cases that one finds that in the long run these conditions are very serious and threatening realities, and introduce into this whole branch of surgery an uncertainty which, combined with the uncertainty as to cure, is very discouraging both to surgeon and patient.

It is clear that some fundamental modification of method is necessary if surgery in this region is ever to attain to the certainty which it has in certain other regions of the body. There are three methods which suggest themselves as affording some hope of general applicability: (1) Preliminary immunisation of the patient against the organisms of the mouth and pharynx; (2) preliminary disinfection of the mouth and pharynx; (3) complete protection of the wound against contact with infective material during and after the operation.

1. *Immunisation.*

Of this I regret to say I have a very small experience, but such as I have is entirely without encouragement. Indeed, it seems to me highly improbable that the method will ever prove of much value in this branch of surgery. Possibly some protection against the septicæmias might be obtained, but I doubt if the local wound infections are likely to be made much less serious.

2. *Preliminary Disinfection.*

The mouth is the only source from which serious sepsis of wounds either there or in the pharynx can come. The desirability of preliminary cleansing of the mouth has long been recognised, and I do not suppose there is a surgeon who would operate on the mouth without some such preparation. Perhaps the need for such measures before operations on the pharynx is less generally recognised, but it obviously has only to be mentioned to be acknowledged. We may take it then that the scaling of teeth, the removal of stumps, and the use of disinfectant mouth washes are universal to-day. Whether these measures are regarded as ensuring any great improvement in the dangers of the more extensive operations is more difficult to say. I must confess that I have often found it difficult to satisfy myself that the most industrious use of these devices has yielded any appreciable diminution in sepsis. Speaking of the pharynx operations chiefly, I would say that as long as the patient has teeth there can be no approach to certainty that an operation will not be followed by dangerous sepsis. As soon, however, as we have to deal with edentulous patients a change in the grade of infection is at once obvious. Local infection of the wound surface still occurs, but spreading infections practically are not seen, sloughing is much less marked, and serious toxic symptoms are entirely absent. As representative cases I can recall an excision of a large ulcerating sarcoma of the tonsil, a very extensive laryngectomy, and an excision of a large cancer encircling the hypopharynx. In each case the patient was edentulous, and in each healing was extraordinarily rapid. In fact, I can state positively that in the case of an edentulous patient I have never had the least cause for anxiety as to local sepsis after an operation on the pharynx. One of the reasons why cases in hospital practice usually do worse than private patients is that they do not acquire the clean edentulous mouth until later in life.

The advantages of a toothless mouth over the most elaborate efforts towards disinfection are so great that it is doubtful whether we should not always insist upon it as a preliminary to pharynx operations. I must confess that I do not always have the fortitude to do so. When a patient has just been told he has a very serious operation before him which will probably have to be done in two stages, it demands a great deal of determination on the surgeon's part to insist on the clearance of the mouth and another anæsthetic. Nevertheless, it will usually be found that when the situation is explained most patients over 50 are glad enough to see the last of their teeth, which have generally by then ceased to be worth the trouble they increasingly give. From the point of view of the surgeon who has to deal with tumours of the pharynx modern conservative odontology is a very unwelcome triumph of science, and he cannot but be glad that there is a tendency amongst dentists to-day to admit that as soon as the teeth begin to give trouble in the elderly making a clean sweep of them is by no means the serious crime it was formerly thought to be.

If it is decided to remove all the teeth, and I repeat that this should always be considered most earnestly before all the graver operations, two practical points should be borne in mind. First, that in order to get the full advantage of the clean mouth the tooth sockets must be allowed completely to heal before the main operation is done. This generally means a delay of a fortnight. If a preliminary gland operation is contemplated it may be done in the interval. Secondly, the removal of the teeth should be done with great care to inflict a minimum of injury. The displays of prestidigitation necessary when gas is the anæsthetic used, very frequently, if the number of teeth to be removed is large, leave the gums and jaws unnecessarily lacerated and liable to sepsis, and the patient suffering from an appreciable degree of shock. I think in these cases it is much better to give chloroform, and then very quietly and deliberately to remove the teeth, taking care that each one is extracted with a minimum of damage even to the gum.

3. *Complete Protection of the Wound against Contact with Infective Material.*

From the time when Whitehead introduced what was called his varnish many attempts have been made to protect wounds made in the mouth, at any rate from immediate contact with infective material. In my experience painting and plugging and such devices have been of no value. Again, for a long time the smaller wounds in the mouth have been stitched up with of course very satisfactory results. To a certain extent also larger wounds have been closed, but possibly not very systematically, for although many operators recommend the procedure they do not do so very warmly. One of the reasons is perhaps that very free access is necessary if a wound is to be thoroughly closed, and operators probably would scarcely look with favour upon increasing the extent of the operation solely for the purpose of suturing the wound. Again, the larger wounds, unless they are stitched up with certain precautions, are quite apt to behave unsatisfactorily.

Practically all wounds of the tongue can be closed and primary union obtained if there is free access and broad surfaces are brought together. Merely uniting edges of mucous membrane is quite useless, as they always slough. Deep mattress sutures of catgut should be used and the object of the surgeon should be to bring every surface of the wound in contact with another so that no cavity remains. In this way all oozing is stopped and in the great bulk of cases primary union is obtained throughout. Sometimes the edge of mucous membrane sloughs, but the amount of necrosis is always inconsiderable. By this means the operation is practically deprived of danger, the convalescence is greatly shortened and made incomparably less distressing. Even fairly large growths of the tongue may be dealt with, the gland dissection done at a separate sitting, and the patient be ready to leave the hospital completely healed in a fortnight.

The advantages of this method are so obvious that the extension of it to the pharynx could scarcely fail to suggest itself. For some years I have been interested in attempting

to develop a technique which should allow of this. The problem in the pharynx is much more difficult for many reasons. Nevertheless, I think it can be solved, and though I have no convincing body of cases successful as to cure to bring before you, I believe I can show that the technical difficulties of wound closure in the pharynx can be overcome. In operations on the pharynx it must be remembered that there are two wounds which need to be closed in order to prevent access of infective material to raw surfaces—viz., the wound made by removing the tumour and the wound made in opening the pharynx to obtain access to the tumour.

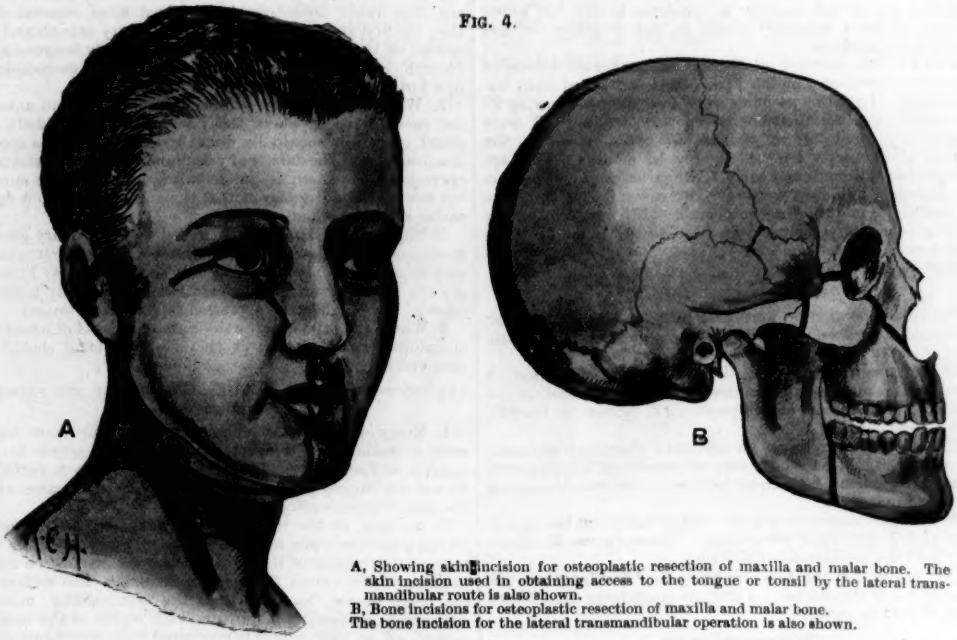
In operations on the oropharynx (e.g., tonsillar tumours) these two wounds are practically continuous and are sutured together. The only method giving satisfactory access to such growths is in my opinion one in which division of the jaw in front of the masseter is an essential part. Closure of the whole pharynx wound by numerous deep mattress sutures can usually be effected. It is, however, difficult to obtain complete union, and there is usually some leakage after a few days. This is quite small in amount, and at such a period of no serious importance. Occasionally in this region actual primary union can be obtained in the whole wound, but this is not possible except in the edentulous, and even then is scarcely to be expected. Still, such a success, even if a rarity, is very encouraging.

In the case of epilaryngeal tumours the wound of access and the wound of excision are distinct. On account of the presence of the tongue immediately in front of the latter enough tissue can be obtained to secure closure provided very deep strong sutures are used.

The lateral incision in the pharynx (wound of access) can be readily closed provided no attempt at edge-to-edge suture is made but flat raw surfaces are brought together. I have several times succeeded in preventing any leakage whatever from the pharynx into the neck wound in these cases—a result particularly to be desired as one generally does these operations in one sitting, and therefore the neck wound is very large from the gland dissection and traversed by the carotid vessels. In a recent case, for example, I did a neck dissection of an extensive kind and then proceeded to remove a large cancer of the epiglottis. There was no leakage from the pharynx and the neck wound healed by first intention except for two small cavities which were deliberately kept open. In such cases, of course, the dangers of wound infection and secondary hæmorrhage are practically abolished.

When we come to the hypopharynx a fresh difficulty presents itself and has to be met in an entirely special way. It is that there is no spare tissue to allow the wound of excision being stitched up. Even after quite small excisions the wound cannot be got together except under great tension, which inevitably leads to additional sloughing beyond that caused by the sepsis. Moreover, in this region, even if the patient survives the risks incident upon infection, which she may well do, a serious stricture is sure to develop. It is clear, therefore, that some additional material must be provided, and fortunately a thoroughly satisfactory one is available in the skin. The method consists simply in turning a suitable flap of skin into the gap in the pharynx. A fistula is left at the pedicle of the flap and closed later. It gives rise to no difficulty, causes no interference with swallowing, and can be left indefinitely if desired. I shall enter into no technical details here, but must mention three points which are to be regarded as matters of principle. First, the flap must be cut in accordance with the situation of the tumour. If the latter is posterior in the pharynx the flap must come from the front of the trachea and have its pedicle over the sterno-mastoid. Secondly, edge-to-edge suture is here also quite useless, and can only lead to sloughing. Surfaces of flap and surfaces of pharyngeal wall must be brought together by mattress sutures, the union resembling that used in suturing ends of bowel together. Thirdly, every effort must be made to preserve the surface over which the flap will lie from being infected during the operation. If these precautions be observed primary union of the flap into the pharynx can be obtained.

FIG. 4.



A, Showing skin incision for osteoplastic resection of maxilla and malar bone. The skin incision used in obtaining access to the tongue or tonsil by the lateral transmandibular route is also shown.
B, Bone incisions for osteoplastic resection of maxilla and malar bone. The bone incision for the lateral transmandibular operation is also shown.

To summarise the considerations brought forward in the last section we may say that the essentials of an operation which shall be satisfactory from the point of view of safety are: (1) the prevention of aspiration of infective material into the lungs (laryngotomy or tracheotomy); (2) the adequate preparation of the mouth (removal of teeth); and (3) protection of the wound from infection (wound closure).

TECHNIQUE OF OPERATIONS.

In this section I propose to give some account of the actual methods of operating I have come to regard as the most suitable for the various tumours. It will not be possible to

deal with them in any great detail, and I shall limit myself to essentials.

RESULTS.

As a preface, however, I feel I should lay before you some account of the results of my own operative experience. These are neither extensive nor successful, and they therefore possess very little interest for anyone but myself, to whom they display an instructive series of mistakes, and failures to appreciate the significance of the various problems. Coming as they do from a period when an attempt was being made to evolve more certain methods of dealing with these forms of disease the cases are almost all of them types of advanced cancer. The few early cases contained in the series were there as it were incidentally, for they presented no particularly urgent problems for solution, whereas difficult and even desperate cases were as far as possible selected. For this reason the results as regards cure cannot be regarded as anything but unsatisfactory. Again, many, if not most, of the earlier operations were done by methods which I should not hesitate to condemn to-day, but which formed perhaps necessary steps in the evolution of less defective procedures.

I find I have operated on 32 cases of malignant disease of the mouth exclusive of the lips. Of these, 4 died from the operation. In 5 the patients were lost sight of, leaving 27 in which the termination is known. Of these, 7 were apparently cured. In 2 of these 7 cases, however, the period of immunity has lasted only 18 months. They are included as both were very early. All varieties of epithelioma are included, and most were very late cases. The figures as to immediate mortality are respectable (12½ per cent.); the figures as to cure (25 per cent.) are to my mind far from satisfactory. Later methods would, it is to be hoped, give something much better.

Oropharyngeal Group.

The cases operated on were 14. Of these, 11 were tonsillar or immediately about the tonsil; 3 were of the pre-epiglottic part of the tongue.

Of the tonsillar cases 2 died from the operation, 3 developed recurrence of the disease, in 3 the result is not available (1 too soon after operation, 2 cannot be traced), and 3 were cured.

The 3 cases cured were an extensive ulcerating sarcoma, an early epithelioma, and a very advanced epithelioma with gland involvement. All these have been free from recurrence for over three years.

Of the pre-epiglottic lingual cases 2 died from the operation and 1 developed recurrence. These figures illustrate very well the seriousness of this type.

The figures for the tonsillar group tend to exaggerate the seriousness of the disease. Certainly much more than 25 per cent. should be curable.

Epilaryngeal Group.

The cases operated on were 10, all distinctly advanced cases, some markedly so. Of the 10 cases, 2 died from the operation, 3 developed recurrence, 1 has been operated on recently, and 4 were cured.

Of the 4 cases cured, in 2 the growth was of the epiglottis and in 2 of the aryteno-epiglottic fold. In 1 a laryngectomy was done, but in the other 3 local excision of the growth only. All have been free from recurrence at least two and a half years. The 3 who were treated by local excision of the growth recovered practically a normal voice and perfectly normal deglutition. In all of them there was extensive gland involvement. These figures may be regarded as fairly satisfactory. All the 4 cured were desperate cases on account of the primary growths and the glands both being of serious dimensions. That no mutilating operation was necessary in 3 cases is encouraging. The percentage of cure should, however, be at least 50.

Hypopharyngeal Group.

The cases operated on were 5, and no cure is to be recorded; 2 died, 1 from mediastinitis and 1 from secondary hæmorrhage. Of the 3 remaining cases, in 1 the operation was not completed, in 1 the patient died from intercurrent disease within six months, and in 1 the patient lived in normal health for a year and then developed an aberrant recurrence high up behind the pharynx. Two of the cases illustrated very successfully the advantages of wound closure by a transplanted skin flap.

SEQUENCE OF GLAND OPERATION AND OPERATION ON PRIMARY GROWTH.

An important question to be decided in every case is whether the disease is to be attacked in a two-stage or a one-stage operation, and as a corollary whether the gland operation or that on the primary growth should be done first.

In the great majority of cases there can be no doubt that the two-stage operation is necessary. The attempt to accomplish in one sitting the two very complex procedures can only lead to excessive danger to the patient or a risk of incomplete removal of the disease. The only exception to this rule that I at all commonly allow myself is in the case of epilaryngeal tumours. Here the primary growth cannot be attacked until the glands have been removed, and on account of the situation of the growth the gland operation even cannot be done with any safety without a preliminary tracheotomy.

As to the sequence of the two stages the following general rules are those upon which I decide.

1. If the primary growth is in such a situation and of such size that rapid union can be obtained after removal of it, then the first stage should be on the primary growth and the second on the glands. This is chiefly in early tongue cases. In such cases the whole treatment can usually be completed in a fortnight.

2. Where the primary growth is such that rapid union is not probable (e.g., where the jaw has to be divided), the gland operation should be done first. This has its special disadvantage in the danger of pneumonia of an extensive neck operation when there is an ulcerating growth in the mouth, but the special advantage is that the gland operation is much easier when done first.

3. Where the glands hinder access to the primary growth three courses are possible—(*a*) Gland operation first (glands very large). Tracheotomy is usually necessary. (*b*) Primary growth and *partial* gland operation first (usually tonsillar cases). (*c*) Single-stage operation (epilaryngeal cases).

4. Where the primary growth or gland mass is of uncertain operability the one which is the more doubtful should be attacked first.

THE ESSENTIAL STEPS OF THE OPERATION ON THE PRIMARY GROWTH.

1. Every operation for removal of a tumour must begin with a definite stage devoted to obtaining access to the mucous surface of the tumour. This is usually a perfectly formal anatomical procedure which applies to all cases when the same region is affected.

2. As soon as the tumour is fully exposed a systematic attempt must be made to disinfect the region, and during the subsequent removal of the growth every effort must be made to preserve the wound from contamination. The surface of the ulcer should be cauterised, the surrounding mucous membrane cleansed with spirit, and the region of the tumour packed off so that mucus is prevented from flowing into the wound.

3. The tumour is then excised with the size and form of surrounding margin dictated by the nature of the case.

4. The wound from which the tumour has been taken must be closed by suture and such other plastic procedures as are necessary should be carried out.

TECHNICAL DESCRIPTION OF OPERATIONS.

Nasopharyngeal Group.

Exposure of the tumour.—The only method of obtaining free access to the nasopharynx is by osteoplastic resection of the upper jaw. The classical form of this operation on the lines of the ordinary excision of the jaw gives very poor exposure, and I have found it a great advantage to mobilise the malar bone with the maxilla. This makes the operation actually easier and gives quite a fair view of the nasopharynx. In order to avoid the very ugly œdema of the lower eyelid which so often occurs, I carry the incision upwards through the eyelid just outside the punctum lacrymale, along the orbital margin inside the lid, and then from the outer canthus downwards and outwards over the cheek. (Fig. 4.)

Removal of tumour.—No special feature of this needs discussion. Hæmorrhage is not difficult to control, and plugging need not be firm or bulky.

Closure and reconstitution.—The jaw can be fixed in position by a stout wire just below the nose. The wire generally has to be removed later. After a few months'

time very little deformity is visible, and the mobility of the eyelid has generally been completely restored.

Oral Group.

In dealing with this group no detailed description is necessary, and I shall refer merely to a few points of technique which have struck me as particularly important or as often overlooked.

Choice of operation.—In my experience all growths of the "superficial" type can be dealt with by an intrabuccal operation with or without splitting the cheek. When the tumour is of the nodular type or has passed into the stage of submucous invasion, and when the tumour involves or begins in the floor of the mouth, I believe it cannot be removed adequately without division of the jaw. All the submandibular methods have the disadvantage that the growth cannot be freely inspected or disinfected before the removal of it has been begun, and that subsequent closure of the wound is difficult or impossible. I have never used the lateral submandibular method at one time associated with the name of Kocher, and I do not expect ever to do so. It is, in fact, no longer recommended by its author, and would not have been referred to in these lectures, which deliberately ignore the historical side of the subject, had it not been so conspicuously the beginning of the modern treatment of cancer of the tongue, and therefore by no means the least of the debts we owe to the great and ingenious surgeon whose name it bore.

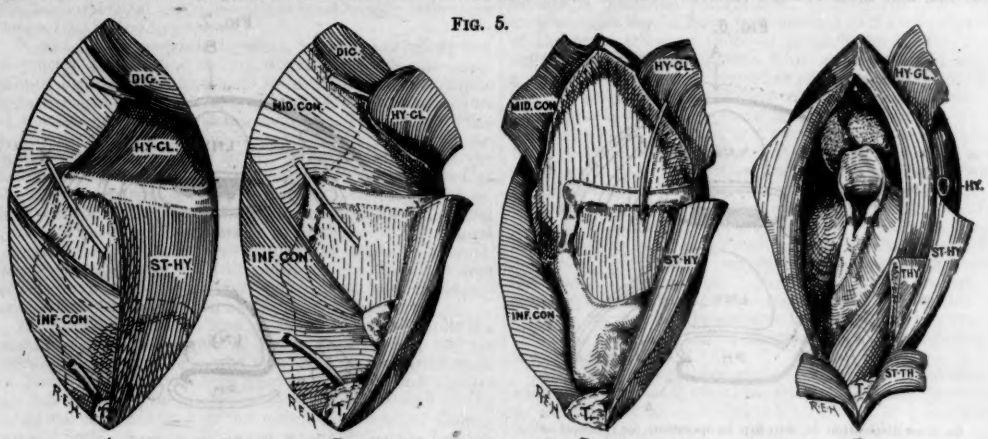
The intrabucoal operation.—The only point of importance in this operation is the adequate fixation of the tongue before the excision is begun. The ordinary method of passing a thread through the front of the tongue is very apt to lead astray because the muscular substance, being extensible, stretches after the anterior part of the incision has been made, and this leads to the free margin behind the growth being defective. A thread should be passed deeply well behind the growth and the tongue held out with this; another should be passed on the mesial side and another in front. When these threads are held taut the area from which the growth is to be excised is kept relaxed, so that a constant margin can be maintained all round during the excision. Moreover, the posterior thread keeps the tongue against the angle of the mouth and prevents the entry of blood.

Splitting the cheek is a most useful measure, and should be used much more than it is. It is sometimes condemned on account of the conspicuous scar it is supposed to leave. Such an objection is not valid, because if the wound is sutured with mattress stitches so as to make the line of suture project no depression of the scar follows. I have used this incision several times in women, and have obtained a scar that was practically invisible.

The transmandibular operation.—This should never be done by continuing downwards the posterior end of the cheek-splitting incision as originally designed by Langenbeck. Such an incision permanently paralyses the lower lip. The jaw is best exposed by a flap, the incision running down through the lower lip in or near the middle line and continuing backwards beneath the jaw to the anterior edge of the sternomastoid. (Fig. 4, A.) Care is taken to incise the muco-periosteum well in front of the place where the bone is to be sawn, so that the incision in bone and soft parts do not coincide, and the risk of infection of the former is diminished. I have used many methods of fixing the divided jaw. The least unsatisfactory is a wire near the lower border. The great defect of the operation is infection of the bone. Unfortunately, it is common and usually troublesome. In the most favourable cases the wire has to be removed sooner or later. The liability to this complication must be regarded as the chief defect in the technique of access to the mouth and tonsil, but the advantages of the operation with regard to adequate removal of the growth are so great that I do not think it can be dispensed with. It must never be forgotten that the object of the surgeon is to cure the disease, and that the one indispensable quality of an operation is its suitability for this purpose.

The operation is admirably adapted for giving access to large growths of the tongue, to growths of the floor of the mouth, pharyngeal part of the tongue, and tonsillar region. It allows of almost indefinite extension of the wound downwards.

FIG. 5.



Four stages in the operation of transthyroid pharyngotomy. A, Lateral aspect of pharynx at end of preliminary gland dissection. B, Hyoid muscles reflected. C, Pharyngeal constrictors reflected, aponeurosis of pharynx exposed; great cornu of hyoid and ala of thyroid prepared for removal. D, Lateral wall of pharynx incised, epilaryngeal region exposed.

Oropharyngeal Group.

Small growths of the tonsil not extending beyond its surface may be removed through the mouth after the cheek has been split. It is not desirable to enucleate the tonsil in these cases, but the growth should be freely cut out with a good margin of the surrounding tissues. Such wounds can be closed completely. In these early cases it is never necessary to remove much of the soft palate, and this point should receive attention, otherwise a little careless freedom may permanently modify the voice. Large growths can only be reached by the transmandibular operation. (Fig. 4, A and B.) Excision of the tonsil through the neck on the same side should never be done, as no inspection of the growth can be made before the removal is begun.

Epilaryngeal Group: Transthyroid Pharyngotomy.

The upper opening of the larynx lies under cover of the ala of the thyroid and the great cornu of the hyoid. It can be exposed undisturbed only if these structures are removed. The operation of which this is an essential part may conveniently be called transthyroid pharyngotomy. (Fig. 5.)

As I have already said, the operation has usually to be done in combination with the gland operation. Consequently the extensive neck wound is liable to infection from the pharynx. Should this happen the result can scarcely fail to be serious. The carotid vessels, carefully exposed by a clean dissection of them, run through the midst of the wound, and secondary hæmorrhage from them might quite

possibly occur. A series of elaborate precautions have to be made to secure the neck wound from contact with infective material.

The incisions for the gland operation include a longitudinal one over the anterior part of the sternomastoid. The deep fascia is divided, not in this line, but an inch or more further forward. It is then turned back from over the muscle in the form of a flap attached posteriorly. If the glands are extensive the whole sternomastoid is removed, otherwise only its anterior part. The gland dissection is then completed, the external carotid being divided at its origin. (Fig. 5, A.) Before approaching the pharynx the fascial flap already described is stitched to the pre-vertebral muscles behind the pharynx and internal to the carotid vessels. In this way the whole of the posterior part of the wound and the carotid vessels are securely shut off from the part which will be exposed to infection from the pharynx.

The inferior constrictor is now detached from the thyroid and cricoid cartilages and turned back. The stylopharyngeus is detached from the posterior border of the thyroid, and the great cornu of the hyoid is freed from its muscles (hyoglossus, middle constrictor, &c.). (Fig. 5, C.) The pharyngeal wall is separated from the deep surface of the great cornu and the ala, and these two are removed with the thyrohyoid ligament connecting them—the great cornu at its joint and the posterior two-thirds of the ala. It is important to excise the whole great cornu and a full two-thirds of the ala, otherwise the cut surfaces are apt to become infected and give trouble from necrosis.

The wall of the pharynx—aponeurosis and mucous membrane—is now freely exposed unopened. Through it the tumour is to be felt and some idea of its size and situation obtained. The pharynx is now incised longitudinally, its edges being secured with sutures by which they can be held up so as to protect the surrounding wound which is carefully packed with gauze. (Fig. 5, D.) Plugs are pushed up into the mouth and nasopharynx so as to prevent mucus trickling down into the wound. The tumour having been investigated is freely excised under guidance of sight and touch. During excision of the epiglottis the strong attachment of the latter to the body of the hyoid should be remembered, otherwise it may be felt and mistaken for an extension of the tumour. It may be necessary to carry the incision right down to the vocal cords. This wound is closed by deep strong mattress sutures which must obliterate its cavity completely.

The pharynx wound is then closed with at least two rows of suture, bringing raw surfaces together. The constrictor may then be stitched back in place. The wound should be drained by two plugs in its anterior most superficial part, the plugs going down to the pharynx wall. A large tube should be left in the posterior isolated part of the gland wound for 24 hours.

The tracheotomy tube should always be left in and is usually needed for a week. Feedings should be by a soft rubber catheter passed into the œsophagus. Swallowing should not usually be tried for about ten days or a fortnight. Generally there should be a complete absence of leakage from the pharynx and the greater part of the gland wound should heal by first intention.

The Sinus Pyriformis Group.

For these laryngectomy must generally be done. I propose to say nothing about the technique of this. It is important to ascertain how much of the pharyngeal wall is involved in order to make adequate provision of flaps to make good the defect. Into the elaborate arrangement and designing of these it is not possible to enter here.

The Hypopharyngeal Group.

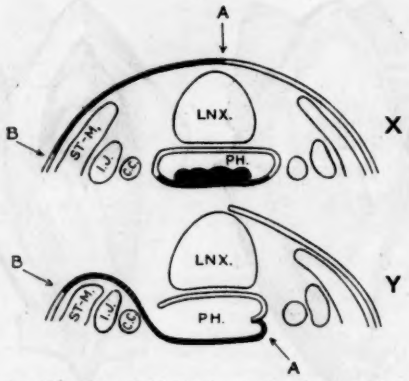
The transthyroid method of approach is always desirable, but the incision must be in the form of a flap to provide for reconstitution of the pharynx. The disposition of the flaps in accordance with the situation of the growth is seen in the diagrams. (Figs. 6 and 7.) It is most important to make out beforehand the exact site of the tumour. Great care should be taken not to reflect the flap the least degree further than is necessary. If there is any doubt of the size of flap needed it should always be made too large rather than too small. The whole art of plastic surgery by skin flaps lies in a complete absence of tension.

Especial care should be taken to prevent mucus from getting on to the raw surface left by removing the tumour. The flap must be stitched to the cut edge of the pharynx by numerous mattress sutures. In all operations of this and the preceding types the suturing is extremely tedious, and demands from the surgeon endless patience. There need be no hurry whatever to close the fistula by dividing the pedicle of the flap and stitching it over.

In the early post-operative period the patient should be fed by tube through the fistula. The skin of the flap is apt to become bright red during the first week or so of its contact with the pharyngeal contents. In the absence of œdema and induration this must not be assumed to indicate suppuration beneath the flap.

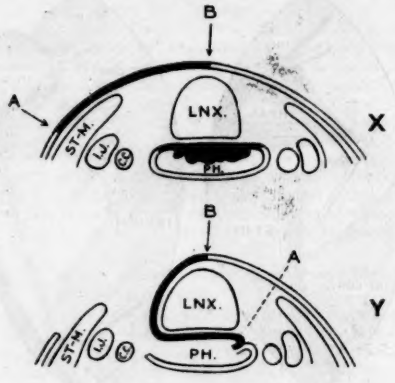
In concluding these lectures it is perhaps desirable for me to make the observation that they were written deliberately as an exposition of my own experience and of the conclusions I have been able to draw from it. Any dogmatic statements of fact or inference carry with them, therefore, the implicit qualification of their personal origin, and are in no way supposed to be of wider validity than exactly that which is warranted by the limited experience they embody. Furthermore, the various technical procedures recommended are given for the usefulness, such as it is, which they seem in practice to possess, and the statement of them, therefore, is not intended to include the implication that any of them is described here for the first time.

FIG. 6.



To show disposition of skin flap in operation for removal of hypopharyngeal growth—tumour on posterior wall. X, Before removal of tumour. Skin flap and parts to be removed shown in solid black. Y, After removal of tumour; skin flap in place. A marks situation of apex of flap. B marks situation of base of flap. LNX, Larynx. PH, Pharynx. C C, Common carotid. I J, Internal jugular. ST-M, Sternomastoid.

FIG. 7.



To show disposition of skin flap in operation for removal of hypopharyngeal growth—tumour on anterior wall. X, Before removal of tumour. Skin flap and parts to be removed shown in solid black. Y, After removal of tumour; skin flap in place. A marks situation of apex of flap. B marks situation of base of flap. The fascial flap to protect the carotid vessels is not represented.

BACTERIOLOGICAL EVIDENCE IN SUPPORT OF INTESTINAL INTOXICATION.[1]

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MY interest in the question of alimentary toxæmia is naturally confined to the bacteriological and biochemical evidence which has been advanced by the school of Metchnikoff in support of their master's thesis. That thesis asserts that the poisons elaborated by the micro-organisms of the intestinal tract, and particularly those harboured by the large intestine, are the most potent factors in the production of a long array of symptom-complexes loosely grouped under the term "auto-intoxication," and further that these same poisons are the essential causes of the sclerotic changes in the organs which accompany old age. The thesis, as you can understand, is therefore a perfectly straightforward one, and one which ought to admit of both observational and experimental bacteriological proof. In the absence of proof capable of satisfying the bacteriological critic the thesis must remain little more than a fascinating hypothesis.

It will be my purpose, therefore, to discuss as briefly and succinctly as the time at my disposal permits the main bacteriological evidence which Metchnikoff and his pupils have brought forward during the past four years in support of the theory of intestinal intoxication. This evidence has been sought for in the following types of research: 1. An investigation of the flora of the large intestine or of the fæces with a view to the classification and identification of the various bacterial groups and their biochemical properties. 2. Experiments on the toxic action of filtrates of special groups of these micro-organisms in animals. 3. Analogous experiments with substances of definite chemical composition, especially indol. 4. Alteration in the intestinal flora as the result of food changes, constipation, and operations undertaken for the removal of the large intestine.

In connexion with the first of these lines of research the main work has been done by Metchnikoff himself and his pupils, especially Distaso, who have built on the earlier work of Tissier; and I would here point out that French authors are too prone to the assertion that our knowledge of the intestinal flora has been in the main the outcome of French work. Such, of course, is by no means the case. In fact, the chief contributions to our knowledge of the coliform group have come from workers in this country and in America. It is, however, to the anaerobic flora particularly that Metchnikoff and his pupils have directed their attention, as it is these proteolytic anaerobes which they specially incriminate as playing the chief rôle in what they call "intestinal putrefaction." It would be out of place to enter into a description of these various anaerobes, as I am convinced that the question of the classification and identification of these groups is far from settled, and there are probably far more names than bacteria to correspond. It is doubtful if much that is new on this subject has emerged from recent French work. The chief putrefactive organisms whose cultural and biochemical properties have been studied in connexion with intestinal putrefaction have been B. perfringens, B. sporogenes, and B. putrificus, but it cannot be said that we have yet accurate methods of differentiating anaerobes. One must also mention the acidophile or acetogenic organisms, which by the French observers are regarded as highly beneficent organisms by virtue of the inhibitory effect exercised by their acid products on the growth and activity of the putrefactive types.

Of these acetogenic organisms, which have the property of producing acid from lactose and of being able to grow in acid media, the most important perhaps is the B. bifidus of Tissier. This author found that this organism is the chief representative of the flora of the breast-fed child—a statement which more recent work has confirmed. It may be noted that B. bifidus is a strict anaerobe and is Gram-positive.

A very similar organism to which attention has been paid is the B. acidophilus of Moro. As the child passes on to more varied food there is a gradual change in the flora from the purely fermentative type represented by the acid-formers above mentioned to a combined flora of the fermentative and putrefactive type—using the term "putrefactive" in the sense of ability to break down nitrogenous constituents to the stage of peptones and proteoses and mono- and diamino-acids. Further katabolism of these cleavage products is effected mainly by the representatives of the coli group, many of which have the power of producing indol from tryptophane and some of producing phenol from tyrosin.

Now, it is seen that in the adult normal human flora the Gram-positive acetogenic organisms represented by B. bifidus are rare and never predominate, as in the young child. The predominant group is that of the B. coli, and in addition there are the representatives of the putrefactive anaerobic group (B. putrificus, B. perfringens, B. sporogenes, &c.).

Indol is formed chiefly by coliforms, and only to a small extent by these putrefactive anaerobes. It is, therefore, all the more surprising that Metchnikoff and his school should have drawn so much attention to the anaerobes as the chief factors in intestinal putrefaction, while at the same time their energies should have been devoted to the investigation of the toxic action of indol—a product chiefly of coliform activity. How far the indican in the urine is an evidence or a measure of intestinal putrefaction by micro-organisms is not yet completely settled; but admitting for the sake of argument that it does come from the action of micro-organisms in the intestine, it is not at all clear why it should be regarded by Metchnikoff and his school as the chief toxic agent produced by their action. Indol, of course, is a substance of definite chemical composition, while the known bacterial toxins are of unknown chemical composition. How far, then, the Metchnikoff school is justified in taking a simple substance like indol as the toxic product *par excellence* of the action of putrefactive intestinal microbes is extremely doubtful. Recently the opinion has been revived by Emmerich that in cholera the symptoms of intoxication are not due to specific vibrio-toxins but simply to the nitrites which, as you know the V. choleræ is capable of forming in the test-tube.

Little support has been given to this view in the case of cholera and it would, therefore, seem all the more gratuitous to regard indol as the main toxic product of putrefactive organisms the pathogenic action of which has been only very insufficiently studied. Let us see, therefore, what has been the main result of the experimental work performed with these putrefactive anaerobes and with their presumed chief toxic product indol. In one of his earliest papers Metchnikoff tested the toxic action of filtrates of some of these anaerobes. Filtrates were tested intravenously on rabbits in doses of 7–8 c.c. per kilo. of body weight. These are very large doses. For an ordinary full-grown rabbit this would mean at least 20–25 c.c., and it is not surprising that in some cases a fatal result ensued. Great variation, however, was apparent in the toxic power of these filtrates (B. perfringens). Nevertheless, the result of these experiments led Metchnikoff to state that in the putrefactive organisms of the digestive tube we have a source of auto-intoxication. Further experiments on this line were performed by his pupil Korentschewsky, who tested filtrates of anaerobic organisms isolated from rabbits' fæces. Occasionally quite potent filtrates killing in 1·3 c.c. per kilo. were obtained, but in other cases doses of 20 c.c. per kilo. did no harm. The strongest filtrate was prepared from B. perfringens. Experiments were also performed on rabbits by intrarectal injection of filtrates, and there was some very slight evidence that antibodies to these organisms appeared in the blood serum.

In the case of dogs fed daily with broth cultures of B. perfringens (in very large doses 200–500 c.c) progressive loss of weight occurred with slight anæmia, and when the animals were killed some evidence of sclerotic changes in the kidneys were found. It is surprising that nothing worse happened after such heroic dosing.

It must not be supposed, however, that the putrefactive organisms are the only defaulters. The flora of the large intestine is according to Metchnikoff wholly bad, and

[1] A paper read at a special meeting of Fellows of the Royal Society of Medicine on April 14th, 1913.

therefore we have other series of experiments with preparations of staphylococci, coli, &c.

According to Manouélian atheromatous plaques appeared in the aortæ of a large proportion of rabbits inoculated repeatedly with staphylococci (in 73 out of 86) and also in monkeys. These plaques occurred at the level of the arch of the aorta. It must be noted, however, that Weinberg found spontaneous atheroma in 4–19 per cent. of rabbits. More recently Bertrand and Berthelot have isolated from the fæces of patients suffering from chronic autointoxication an organism which when grown on a special medium containing histidine yields a highly toxic product apparently identical with β-imidazolethylamine, a base previously obtained by Ackermann in the putrefaction of histidine and also by Barger and Dale in ergot. The organism which yielded this toxic product belonged to the coliform group, and according to the authors was closely related biochemically to the B. lactis aerogenes. The authors make the statement that this particular organism was never found in the fæces of normal healthy people. This is a very important statement, and confirmation must be awaited before it can be accepted.

Turning now to the animal experiments performed with definite chemical substances which are understood to arise from the action of micro-organisms in the intestinal tract. In these experiments by Metchnikoff, Dratschinski, and others potassium phenylsulphate and indol have been the chief substances whose toxic action on animals has been investigated. With potassium phenylsulphate atheromatous changes in the aorta of rabbits, guinea-pigs, and monkeys were produced and small cell infiltrates in the liver and kidney. Rabbits received by the mouth 0·04 grm. of paracresol during a period of 1–4 months, and 61 per cent. of the rabbits showed atheromatous plaques. Dratschinski gave similar doses of indol daily to guinea-pigs by the mouth, and obtained evidence of atheromatous degeneration of the wall of the aorta, with chronic interstitial processes in the organs, such as the liver, kidney, and suprarenal capsules. These foci in the wall of the aorta invariably contained calcareous deposits, and the question to be decided was whether these foci met with in the animals intoxicated with indol were merely further stages in the development of the cartilaginous foci met with in similar situations in normal guinea-pigs, especially those of advanced age. Such foci were met with in 67·5 per cent. of normal guinea-pigs weighing 250 grm. and over. The author was of opinion that hyaline and calcareous foci encountered in the intoxicated animals were distinct from the cartilaginous foci found in normal animals, and concluded that intoxication with indol was the exciting cause. It does not appear to me, however, at all proven that the indol, if it affected anything at all, did any more than hasten the calcareous transformation of these normal cartilaginous foci, and the question of the influence of indol in this connexion must still be considered as undecided.

I now come finally to discuss the changes which have been stated to occur in the composition of the intestinal flora in cases of intestinal stasis and in cases which have suffered resection of the large intestine. This question has recently been attacked by Distaso, who had the advantage of obtaining material from Mr. Arbuthnot Lane's cases. Distaso roughly classifies the organisms of the intestinal tract according as they do or do not produce indol. In the normal adult man the fæces, as is well known, show a preponderance of indologenic organisms of the coliform group. In constipation, according to Distaso, there are practically no Gram-negative organisms, but there is a great abundance of spores, the indol-formers being now of the sporulating type. There is also an absolute diminution in the quantity of bacilli present. The conclusion drawn by Distaso that the flora of constipation is an index of intoxication is entirely unsupported by the evidence he adduces. In cases operated upon for removal of the large intestine it was observed that the flora showed not so much a qualitative change as a quantitative change, with a consequent alteration in the functional activity of the organisms concerned. Before operation the flora was one typical of constipation, while after operation the indologenic organisms had largely given place to the acetogenic (i.e., B. bifidus and B. acetogenes), which are regarded as highly beneficent. The effect of this change, according to the author, is that the acid produced by the latter organisms inhibits the activity of, or actually destroys, any putrefactive organisms present. The evidence on which this statement is based was the fact that when the fæces were inoculated on a potato medium marked acid formation took place, while growth on broth containing boiled white of egg only rarely was followed by proteolysis indicating an action on the part of the putrefactive organisms.

It is very questionable how far it is legitimate to assume that the function of a flora in the body can be determined by an *in vitro* experiment of this rough order. To prove a change in flora of this character would require far more extensive bacteriological and biochemical research than has so far been devoted to the subject, and it is indeed remarkable that the author should make the astounding statement "that after this study the theory of chronic intoxication by the work of intestinal organisms cannot any longer be in doubt." As a matter of fact, it is not clear from the paper how often the fæces were examined in these cases, and whether samples were taken at operation from the bowel above the resection. If, as stated, only two examinations of the fæces at a year's interval were made, the data so obtained would be of little value. Such cases would require to be examined repeatedly before and after operation, and under all conditions of diet.

Distaso further asserts that the intestinal flora of the normal adult is noxious, and yet he asks the reader to rejoice with him over the microscopical appearance of the fæcal flora of one of these operated cases. This flora is characterised as "*une des plus belles*," but certainly the flora of the constipated person seems far the more attractive, when drawings of each are placed alongside. With regard to the work done by the Metchnikoff school on the influence of food on the composition of the fæcal flora, I would merely refer to certain experiments of Bertrand, who found that rabbits fed on potatoes always gave a marked indican reaction in the urine, while those fed on carrots gave no such reaction. When a carrot rabbit was placed on potato diet indican appeared. The intestinal flora of the two groups did not differ qualitatively, but the potato rabbits had more B. coli in the fæces. No quantitative data on this point are supplied. Bertrand's view was that in the potato rabbit there was much less acid production from the fermentation of sugar than in the carrot rabbit, and consequently there was nothing to inhibit the formation of indol by the coliforms present. Also it is stated that the flora of the potato rabbit was very poor in amylolytic species, but data on this point are wanting.

It cannot be said that work of this kind advances the subject far. One is tempted to ask why chemical examinations of the intestinal contents were not made at various levels and accurate records given of the organisms met with at these levels. In all the recent work on autointoxication and on sour-milk therapy it has to be remembered that the inhibition of intestinal putrefaction by milk and milk constituents, especially milk sugar, was known years before Metchnikoff popularised the administration of milk soured by lactic acid bacilli.[2] As pointed out by Kendall, the effect of such treatment may be due not to acid produced by the bacilli supplied but to that produced by the B. coli acting on the sugar which is increased in the diet. Protein is thus spared, and consequently protein decompostion products do not appear. A bacteriological basis for the view that the activity of lactic acid bacilli inhibits that of the putrefactive organisms is still lacking.

In conclusion, I am of opinion that the investigation of the biochemical action of intestinal organisms yields a very large and promising field for future research and may throw a flood of light on this question of autointoxication, but it does not seem to me that the results achieved in the types of researches so far published by the Metchnikoff school lend any very marked support to the thesis.

Lister Institute, Chelsea.

[2] See an excellent survey of this subject by Kendall, 1912, Journal of Medical Research, vol. xxv., p. 117.

YORK COUNTY HOSPITAL.—On the nomination of the President of the Royal College of Surgeons of England, Sir Cooper Perry, medical superintendent of Guy's Hospital, with a legal assessor, on April 18th opened an inquiry at the York County Hospital into the charges of mismanagement at this institution made in the *Hospital* by late resident medical officers. The inquiry concluded on the 19th.

VACCINATION FOR VARIOUS INFECTIONS WITH LIVING MICRO-ORGANISMS.

(BESREDKA'S METHOD.)

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From the Laboratory of Professor Metchnikoff at the Pasteur Institute, Paris.

I HAVE already detailed in an article published in THE LANCET[1] my reasons for undertaking experiments with living micro-organisms, the safety and advantages of the method of Besredka employed, and the clinical and laboratory findings on the first cases treated from a prophylactic standpoint.

The application to man of vaccination by living sensitised bacilli typhosi which I established, and by which later workers and myself (for it is now in use as a prophylactic treatment in many countries) have continued to find most gratifying results, together with favourable observations made on animals with sensitised living staphylococci and streptococci, have encouraged me in the undertaking of a series of experiments in the attempt to find a more satisfactory means of vaccination against the common diseases than that with dead micro-organisms. Professor Metchnikoff and Dr. Besredka, to whom I have the honour to be an assistant, have taken a generous interest in my work, and I am deeply grateful to them.

My efforts have been directed against infections by various strains of staphylococci and streptococci, and against those due to the gonococcus. I wished also to include those due to the pneumococci, but my failure to find a serum that would sensitise the strains of pneumococci I had has forced me, owing to lack of time to prepare one, to postpone any observations on man. Dr. H. G. Adamson, whose large clinical experience demands the fullest recognition, seemed in his interesting Goulstonian lectures, 1912,[2] to attach particular importance to the development of detectable immunity reactions in vaccinated patients, and added that "unless a micro-organism can do this, how can it be of use as a vaccine?" I do not wish to enter upon immunity problems, nor upon the question often discussed of taking anaphylactic conditions seen in certain skin diseases a step further into immunity. May I assume that the resistance to or prolonged treatment by mechanical, chemical, or electrical means necessary in some infections of the skin, and the fact that relapse is not uncommon, add justification to the attempts of vaccine workers? Jenner vaccinated ideally for small-pox and Pasteur for hydrophobia, in turning to good use their clinical observations, and I feel encouraged to follow those great masters, awaiting the day when one may fully explain and demonstrate immunity reactions.

The purpose of this article is to describe the clinical observations and results from the vaccination of 150 patients as a curative method of treatment. As my extended experiments are the first that have been undertaken in the application of living sensitised vaccines to man, and may serve as affording indications and contraindications to others, I have entered rather fully into the details of the doses of the various vaccines, and the reactions and results are conscientiously reported. Also I shall describe the lines of procedure I have found to be safe and very satisfactory.

At the time of beginning these experiments the difficulties were numerous, and I was far from unconscious of the precautions necessary. Dr. Besredka very kindly discussed with me the facts we had in hand, the use to make of them, and the lines of safe procedure to follow. The most encouraging of our facts particular to this research was that an animal would support more sensitised than non-sensitised specifically virulent staphylococci or streptococci, and that by non-lethal injections of the same we could rapidly produce immunity. But for the gonococci we had no such encouraging knowledge. The problems that presented themselves, and the manner in which I have attempted to elucidate them, will be seen by following the lines of procedure adopted in the various cases which are recorded below.

As is well established, the colour of a colony of staphylococci pyogenes, the chain of a colony of streptococci, or their cultural characteristics do not denote their particular virulence; nor the appearance of an individual his resistance or requirements for immunisation. Symbiosis, by association of strains of the same or different groups of micro-organisms, has to be considered. I can report that no ill consequences have followed my experiments. The only misfortune was when I tried a non-sensitised strain of staphylococcus pyogenes in my skin in comparison with the same sensitised organism on that of a patient. He had no ill effects. I had an abscess and lymphangitis necessitating an absence of five weeks from the laboratory. The few injections of specific immune serum, together with the immunised micro-organism, produced rather painful reactions and indifferent results.

Before recording the cases in series I may point out that in conducting observations on out-patients I found some attended irregularly. Detailed reports on these are omitted, but any observations of value gained therefrom will be considered in the *résumés* that follow. Almost all the cases recorded were selected by Dr. Darier and his assistant, Dr. Civatte, in their extensive clinique at St. Louis Hospital, Paris. They were from amongst those which they judged would not be readily cured by the usual methods of treatment. I am particularly grateful to them for their kindness and encouragement and for the inestimable advantage of their experience and direction in making my observations. My results published bear their valued testimony.

Gonococcal series.—In 26 cases of uncomplicated acute gonorrhœal urethral discharge treated I have but once seen the discharge cease and failed to find any gonococci during three or four weeks. I do not attach any value to this result. I have tried in varied doses autogenous, non-autogenous, and polyvalent living sensitised vaccines. Later the same dead up to injections of 3 billions. To one patient, not at the hospital, I gave 100,000,000 non-sensitised living gonococci from a 24 hours' culture direct from a urethral discharge. There followed no good effect, no local nor general reaction. I also tried the associated vaccination of living sensitised staphylococci albi (E.) and streptococci cultures from a discharge, but these also failed to ameliorate the condition. No other treatment than that by vaccination was employed. I may add no patient who was treated suffered from any extension of the infection or complication.

The cases of discharge with complications I shall divide for simplicity of description into two categories: (*a*) orchitis and epididymitis; (*b*) rheumatism, tendinitis, periarthritis, arthritis with exudation. I have as before only given in detail those cases that present the fullest interest both in showing the varied doses and degrees of response. In all 25 cases were treated.

In section (*a*) the results were most satisfactory. Most patients were free from pain after the first injection; a few needed two. The two remaining cases were not free from pain until the third was given—all within a week. The large dose seemed to give the quicker relief. It took about three weeks to reduce the infiltration to the size of a pea, a nodule remaining in the globus minor. I had two cases of relapse, both apparently due to prolonging the interval, for rapid amelioration followed the next injection. I saw no relation between rapidity of relief and the previous duration of the infection.

In section (*b*) the results in four cases were quite remarkable. After the first injection and within 48 hours acutely inflamed joints that one could barely touch, in one case of 15 days' duration, were freely movable without pain. The exudation disappeared in three days. Vertebral pain and painful non-suppurating ganglions were also rapidly relieved by the first injection. The cure persisted when patients were seen one month later. The only instances in which there was not complete relief within a week were those of subacute tendinitis without exudation. They necessitated at least 1–3 weeks' injection treatment. I have never read of nor seen such rapid and good results from antigonococcal nor antimeningococcal serum or unsensitised vaccines. The rapid action is as interesting a problem as the fact recently detailed by Mr. L. S. Dudgeon in the Croonian Lectures, 1912,[3] that the "exudate contains opsonins and complement

[1] THE LANCET, August 24th, 1912.
[2] THE LANCET, April 6th, 13th, and 20th, 1912.
[3] THE LANCET, June 15th, 22nd, and 29th, and July 6th, 1912.

in large amount," and yet one can frequently isolate the gonococcus from the synovial membrane and exudates before pus formation. My impression from experience is that great value lies in big doses, and that sensitised gonococci rapidly produce or stimulate a body reaction. I could start with a dose of 500–3000 million sensitised gonococci without a very severe local or general reaction, and the doses could be augmented or similar injections given beneficially within 72 hours. I may add that up to the present I have seen no advantage of the living sensitised gonococci over those allowed to die, and the preparation and injection require very delicate technique. A later worker, Crevelhier,[4] has, however, reported constant success in arresting urethral discharge by such injections.

Staphylococci series.—It is difficult to put into words the impressions gained from the studies on and experiences of this group of micro-organisms. As is known to all workers, the colours of colonies do not always conform to book descriptions. To say that a pyogenic staphylococcus must be yellow, golden, or white is too restrictive, for there are very frequently seen shades especially between the white and golden. We have, in fact, seen three shades of colour in the colonies from the pus of a simple pustule, and these colours have remained one month in the laboratory in subcultures after two days at 37° C.; also, when resown after the sensitised vaccine has been made and conserved in the ice chamber for three months. Again, the strain (K, Case 11) the most prone to produce an abscess in man was isolated from a case of sycosis and is more reddish than golden in colour. Its immunising properties were found in several cases to be excellent. Careful procedure with it avoids an abscess, which I found not only harmful in itself, but capable of producing substances (? aggressins, &c., of Bail, Dudgeon, and others) whose absorption led to aggravation of the infection. The smallest bead of pus should be pipetted off at once. The S. epidermidis albus, considered non-pathogenic by some authors, has given surprisingly good results in several cases of eczema seborrhœicum and papulo-pustular acne.

Some cases showed more rapid progress on alternating the different strains isolated. Others did not need it. Others did well with a non-autogenous strain that corresponded in culture with that from their pus. In five other cases I made successive vaccines from pustules that appeared during treatment and had good results. It is interesting to remark that certain cases derived no benefit from dead vaccines and were rapidly ameliorated by the living sensitised organisms, and in one case I changed from the living to dead unsensitised, and the progress was undone. In no case of the 60 systematically treated cases was there failure to markedly ameliorate the condition, and almost all appear to be definite cures.

Reactions.—Local.—Save in the development of five abscesses (from which the S. pure had similar cultural characters to those injected), in my early experiments the reaction in general was slight and disappeared in a few days. I did not await its absorption before another injection. They were in marked contrast to those that followed the method of Wright. In all, over 600 injections were given. I found no definite rule to lay down, for where I had an abscess in three cases, were it an autogenous vaccine or not, the same or even three times the dose gave but slight reaction in others. I did observe that I could safely give a virulent strain without marked reaction after several doses of a non-virulent one. The question of kidney disease or tuberculosis was not entered into. The results on in-patients and on out-patients were similar.

General.—An elevation of temperature to 38° C. was extremely rare. A slight rise was common. Charts made from four-hourly observations showed no noteworthy constancy. There was occasional fatigue or malaise, rarely headache, during the 12–36 hours following. Twice patients had profuse perspiration with weakness, necessitating bed for 24 hours. I saw no relation between reaction and result.

Streptococcal series.—This included impetigo contagiosa, bullous impetigo, suppuration with lymphangitis, pyorrhœa alveolaris, suppuration in the nasal sinuses, and intestinal hæmorrhage. In this series my experiences are limited to 10 patients injected with living and 5 with dead sensitised streptococci. As is known, the virulence of this micro-organism is most variable, and many experiments were first made on animals the successful results of which encouraged the application of living sensitised vaccines. The five early dead vaccines given, the first in conjunction with Mr. Douglas Harmer and Dr. Mervyn Gordon, in May, 1912, served to determine any toxic results that might follow the rapid phagocytosis and absorption that the present Besredka method leads to. The reactions even with high doses were slight, and the results in general were good. They were surpassed, however, when I gave the living organisms, as, for example, is seen in the remarkable results in Cases 20 and 21. When adding it to the gonococcal vaccination for urethral discharge even to the doses of 200,000,000 living streptococci fæcales, there was but very slight reaction locally, but there was no amelioration of the discharge in several cases so treated.

Reactions.—Both the local and general reactions were always slight after the injection of S. pyogenes, salivarius or fæcalis (Gordon's classification). As I am just about to try this method of living vaccines on an extended series of erysipelas infections I hope later to record further interesting observations.

Sera.—The method of production of antistreptococcal serum at the Pasteur Institute has been frequently published. For antigonococcal and antistaphylococcal sera the animal of choice appears to be the goat. The rabbit may serve for the latter. It gives a good single strain antiserum and is serviceable. One should be sure that the micro-organism is sensitised. I do not wish to imply that a well prepared polyvalent serum would not adequately sensitise a strain in question. It does not do so of necessity, and one must not rely too much, as is frequently done, on agglutinating properties. It is a simple matter to test a serum against a micro-organism for its specific "sensibilitrice." Personally, I always use an antiserum over three weeks old, not heated nor containing antiseptics, and kept in the cupboard in sealed tubes.

The valuable report of cure of a case of endocarditis[5] by Dr. H. Hemstead contains a note of particular interest by my late teacher Dr. T. J. Horder. He stated that the successful application of specific serum and micro-organism may be combined in the sensitised vaccines. This idea has, during the last nine months been put to the practical test and been made a fact.

Preparation and preservation.—The method for other microbes has been described, and there are for those now under consideration but differences of technique. For the gonococci I leave them with the antiserum 12–24 hours at 37° C. and 12–24 hours in my room. For the staphylococci and streptococci I leave them with their respective antiserum for one hour at 37° C. and all night at 0° C. The quantity of serum depends on its richness in sensitising substances. Whereas 0·5 c.c. will well sensitise an 18-hours culture (test tube) if it be rich, 2 c.c. will be more serviceable if it be poor. The microbes are washed and centrifuged twice in 0·75 saline and then diluted in similar saline, so that in this "mother solution" there are 2,000,000,000 to 1 c.c. This solution can be taken in any quantity and when necessary. I have had some nearly five months in an ice chest and they still produce a rich culture if sown. I do not use the ampoules with varied dilutions; the microbes give off their sensitising bodies to the surrounding medium, also they die rapidly. I have found what I call "mother solution" most practical. For living sensitised gonococci I leave them with the antigonococcal serum for 12–20 hours at 37° C., also I put my tubes, saline, &c., at 37° C., so that all manipulations that follow take place as nearly as possible at the body temperature. The injections immediately follow. A culture made on ascite-agar has always been positive.

Doses and intervals.—I realise the importance of making such definitions, especially as my vaccination for typhoid fever observations has served as the basis of an extensive application of the Besredka method. After having now given as treatment about 1000 injections of living sensitised virus vaccines, I am of the opinion that one cannot dogmatise. Much depends on the observations of the vaccinator. Many workers call attention to excessive doses. I think equal importance should be given to insufficient doses or too prolonged intervals. Assured that the micro-organism is adequately sensitised, I found a safe and beneficial

[4] Société de Biologie, January, 1913.

[5] THE LANCET, Jan. 4th, 1913, p. 10.

procedure is to commence with 20,000,000 staphylococci or streptococci and 200,000,000 gonococci (dead), and to augment rapidly and as high as indicated, basing the injections on reaction, local or general, for the two are not necessarily associated. The vaccines may be repeated every second day. A persistent local reaction does not indicate cessation, but only the need to go slowly, increasing the dose. Though not absolutely necessary to continue when, for example, a case appears cured after two or three injections, I have found it a much safer principle to never give less than six injections. Acute cases have done better with higher and daily doses. I prefer all vaccines in 1–2 c.c. of 0·8 per cent. saline.

Vaccines.—The superiority of an autogenous vaccine made from the infecting microbe, first demonstrated by Wright with dead organisms, is equally true for living sensitised virus vaccines in my experiments. But the research of the causative agent is not without difficulty. When a microbe is isolated from deep-seated suppuration or the blood—not, of course, the occasional ones found, say, after a meal—one can justly assume it to be the cause of the infection. But in exposed infections, apart from the question of symbiosis, it is not so clear. To take the staphylococcus as an example, I have seen from pus cultures variability in separate colonies taken, and often two and occasionally three kinds of colonies with the obvious difference of colour. For my part I cannot pick out a colony, make a vaccine, and say it is the causative agent, is autogenous, and should therefore give the best results. Also, I have had no improvement in cases so treated, while rapid amelioration followed the injections of a strain from a similar infection. I therefore suggest in such cases of failure to try another strain and not to wait too long. Whether some strains stimulate the resistance of individuals better than others I do not at present admit.

I have antistreptococcic, antistaphylococcic, and anti-gonococcal sera prepared with many respective strains, and I keep the sensitised virus vaccines of several strains in their "mother solution," applying them as I think indicated. This makes the work in Dr. Darier's extensive service at St. Louis Hospital practicable. The streptococci unfortunately die in about one week. I have, therefore, at times to inject them dead while awaiting the preparation of the living vaccine. All subcultures are kept going, the streptococci strains being based on Gordon's classification. My gonococcal vaccines are now always polyvalent.

The culture medium should be always made in exactly the same way and by the same person.

Cases treated.—Space will not permit of the publication of all the cases. I have selected those of each class that present the fullest interest in the variety of treatment, reactions, and results. I trust that any worker who may find interest therein, or wish to essay this method, will draw useful information, indications, or contraindications therefrom. I may add I have taken particular pains to systematically give the vaccines and to follow the results obtained, and have cited any relapse did it appear.

Biological note.—The virulence of strains of staphylococci from K (Case 11) was evident. They produced good results, and could be given with only slight reactions by gradual augmentation of the doses or previous injections of less virulent strains. Gonococci not sensitised first in the incubator and not washed give rather marked reactions.

CASE 1.—A, male, aged 25; gonorrhœal urethral discharge seven days. Dec. 2nd, 1912: 30,000,000 living sensitised four days' culture of gonococci grown in pure culture from the discharge of another patient, affected four days; saline ½ c.c. 0·85 per cent. 4th: No reaction; slightly less flow; 60,000,000 of same. 7th: No reaction; condition the same; 60,000,000 in 1 c.c. of same. 11th: No reaction; 280,000,000 of dead in 1½ c.c. saline. 14th: Slight local reaction; flow less and more mucous in character. 17th: Lymphangitis of the prepuce, which disappeared after three days' rest; 750,000,000 in 1½ c.c. saline of a polyvalent sensitised vaccine made from 10 strains of gonococci (some of which had been recultivated during several months) grown from different urethral discharges. The serum was taken from a horse immunised by injections of the strains employed; sensitisation in the ice chamber. 25th: No reaction; no marked progress, though discharge was less. No other treatment was employed, and the patient remained at his work.

CASE 2.—B, male, aged 19, out-patient; gonorrhœal urethral discharge six days; much pus and little blood occasionally on micturition. Dec. 11th, 1912: 400,000,000 of dead sensitised (10 strains) gonococci, prepared as for A (Case 1) on Dec. 14th in ½ c.c. saline; injected, as usual, subcutaneously into the arm. 14th: No reaction, local or general; condition the same. 400,000,000 of same in 1 c.c. saline. 16th: No reaction, local or general; condition the same. 500,000,000 of same in 1 c.c. saline. 17th: Slight local and general reaction during 12–36 hours; discharge less and more serous in character. Slide showed few epithelial cells; no mononuclear cells seen; many polymorphonuclears, which contained almost all gonococci (very few were outside the cells); other micro-organisms not seen. 23rd: The week without treatment led to a marked diminution of the discharge, but which was not more serous; there was pain in the anterior urethra on micturition. 24th: Having thus prepared the patient, and in the desire to try to cure his attack by a living culture of pure gonococci, I diluted 100,000,000 gonococci of 24 hours' growth in 1 c.c. saline 0·85 per cent. They were not sensitised and were given living, as a rich culture from the vaccine showed. The injection was in the subcutaneous tissue of the arm. A slight transitory redness at the point of inoculation is all that followed as far as I could judge. The gonococci were of recent isolation. 26th: 2,000,000,000 of same now dead in 2 c.c. saline. 28th: Slight local reaction during 12–96 hours; discharge was markedly diminished. 50,000,000 in ½ c.c. of same; no reaction; discharge more profuse. A slide made showed mononuclear cells containing gonococci; and the same fact may be stated for slides taken in Case 3. Vacuolation marked in polymorphonuclear cells.

CASE 3.—C, male; gonorrhœal urethral discharge; pain in groins and lumbar region; duration four days; discharge copious. Dec. 12th, 1912: 400,000,000 sensitised dead gonococci from 10 cases of gonorrhœal discharges prepared as for A (Case 1) on Dec. 14th, in 1 c.c. saline at 0·85 per cent. 14th: Slight local and general reaction; pain in groin and lumbar region had entirely disappeared; discharge less; there was slight pain in anterior urethra on micturition. 600,000,000 of same in 1½ c.c. saline. 19th: Slight local reaction; no general reaction felt; discharge unchanged. 1,000,000,000 of same in 2½ c.c. saline. 21st: Slight local reaction; no general reaction felt; discharge slightly diminished; painful micturition was not so frequent. Slide showed few epithelial cells; no mononuclear cells seen; gonococci less and mainly in polymorphonuclear cells; other micro-organisms seen were Gram-negative coccobacilli, Gram-positive rods, and diplococci. 1,000,000,000 of same in 2½ c.c. saline. 25th: Practically no local or general reaction observed; discharge less; no pain on micturition. 2,000,000,000 of the same vaccine, which had been conserved almost dry for two weeks in the ice house, in 2½ c.c. saline. 26th: Very slight local reaction; discharge unaltered. Jan. 6th, 1913: The discharge was now profuse and yellow in colour since the 2nd; no cause could be assigned for the change. Slide showed epithelial and mononuclear cells few; many gonococci in and out of the polymorphonuclear cells; many associate microbes as described above; slight vacuolation in polymorphonuclears. 500,000,000 of same polyvalent sensitised vaccine conserved almost in dry state; saline 1 c.c. 0·8 per cent. 8th: Local reaction during 12–48 hours; discharge greatly diminished and more serous in character. Slide showed but very few associated microbes and fewer gonococci; less vacuolation in the polymorphonuclear cells. 200,000,000 of same in 1 c.c. From the culture I found a majority of streptococcal colonies and fewer staphylococcal colonies. 13th: Very slight local redness on the 9th only; no general reaction; discharge still diminishing and more serous in character. Slide showed very few epithelial cells, no associated microbes, great diminution of the number of gonococci and almost all in cells; slight vacuolation of protoplasm in polymorphonuclear cells; many medium-sized mononuclear cells containing gonococci similar to those of Case 2 (B). 250,000,000 of same in 1 c.c. saline in right arm. 75,000,000 of his staphylococci albi sensitised and living, subcutaneously in left arm. 15th: Discharge less and more serous; slight pain again on micturition; only slight local reaction followed each injection. Slide did not reveal any associated microbes, and though the gonococci were numerous they were all in the polymorphonuclear cells; few epithelial and rather more mononuclear cells. 100,000,000 living autogenous sensitised staphylococci albi in 1 c.c. saline. 10,000,000 living autogenous sensitised streptococci in 1 c.c. saline. 18th: Very slight local reaction to the staphylococci during the first 24 hours; discharge now intermittent. 750,000,000 of sensitised dead gonococci in 1½ c.c. saline. 19th: Very slight local reaction. Slide showed a smaller number of gonococci and all in the polymorphonuclear cells; vacuolation in polymorphonuclear cells very slight; a Gram-positive diplococcus and a Gram-negative coccobacillus could be determined in the polymorphonuclear cells. 22nd: 75,000,000 sensitised living staphylococci albi in left arm and 25,000,000 sensitised streptococci in right arm. The slide of this date showed many gonococci, mostly in the polymorphonuclear cells. There were still many medium-sized mononuclear cells, some containing gonococci. Very few epithelial cells and a few Gram-positive diplococci seen. 23rd: No reaction; discharge remains slight since the 19th; itching occasionally in anterior urethra during micturition. 25th: 30,000,000 living sensitised streptococci (prepared on Jan. 14th and producing still a rich culture on agar) in 1 c.c. saline in lower arm. 750,000,000 polyvalent dead sensitised gonococci in 1½ c.c. saline in upper arm. 26th: No reaction to streptococci; slight local reaction to gonococci during 12–48 hours; discharge still remains small, but persists. Slides of the 25th and 26th were similar. There were few gonococci, and all in the polymorphonuclear cells; a few epithelial and mononuclear cells. 29th: No change in discharge. 1 c.c. (containing 100,000,000 gonococci) of a mixture of 5 c.c. Russian antigonococcal serum left with a 24 hours' culture of gonococci 24 hours at 37° C. and 20° C.; then diluted to 20 c.c. saline at 0·75 per cent. 200,000,000 living sensitised streptococci of Jan. 14th in arm. The injection of the serum and gonococci was very painful during 24 hours, with little erythema; only slight reaction followed the large dose of streptococci. Feb. 1st: Repeated injections of both vaccines. March 1st: Painful local reaction to the vaccine containing serum; condition unchanged.

CASE 4.—D, male, with gonorrhœal discharge and most acute pain in both heels, so that he could not walk. There was also a history of untreated syphilis, so mercurial injections were given at the same time—i.e., one injection per week. Jan. 6th, 1913: 500,000,000, in 1 c.c., of a polyvalent (10 strains) sensitised gonococcal vaccine, subcutaneously into the arm. 7th: The local reaction was very marked; for an area of 12 cm. there was an erythema with œdema. The temperature rose to 39° C. during the night, and was now 38·5° C. The patient had headache and malaise. 11th: The local reaction had practically disappeared and patient felt well again. There was no change in his discharge, and the pain in his heels remained. 750,000,000 of same in 1 c.c. saline. 12th: A severe local reaction had resulted, and the whole outside area of the upper arm was inflamed and œdematous. The temperature last night was 39·2° C., and on this date had remained at 38·7° C. He had headache and malaise, but was not sick. No improvement in his discharge or in his heels. 23rd: The local reaction had now entirely disappeared, but no change was apparent in his heels, and the discharge from the urethra was unaltered. As I had given the same dose of the same

vaccine to no less than 20 other patients I was impressed by his marked reaction, and to test his hypersensitiveness to it I gave 200,000,000 of the same vaccine in ¾ c.c. saline in the lower arm, and 500,000,000 of a single strain sensitised gonococcal vaccine in the upper arm. 24th: The reaction locally was again marked, that in the lower arm being more inflamed looking than that in the upper arm, though in neither case was the reaction so extensive as previously. The temperature rose again to 38·7° C., and was still 38·5° C. He had headache and malaise as before. 26th: On the night of the 24th the patient had a profuse perspiration and complained this day of a pain in the chest. I feared pneumonia or lighting up of old tubercle, as has been said to follow vaccination. The examination of sputum by injection into a guinea-pig and the complement-fixation test of blood were negative for tubercle. March 10th: Both knees painful and swollen, the right particularly; general health restored. 1,500,000,000 in ½ c.c. of sensitised polyvalent gonococci (E 14), serum A, 14 hours together at 37° C. 12th: Slight local reaction; temperature rose to 37·7° C. on the 11th; condition unchanged. As patient again felt weak I decided to discontinue the treatment.

I publish this as one of those rare patients who are extremely sensitive to vaccination. At the same time he showed no improvement.

CASE 5.—E, female with a chronic vaginal discharge for 18 months. For 10 days the left wrist had been swollen and extremely painful on the slightest movement; an enlarged and tender axillary gland. Jan. 29th, 1913: 750,000,000 in 1 c.c. of a polyvalent (10 strains) sensitised gonococcal vaccine conserved one month almost dry and diluted before use. Feb. 1st: Very slight local reaction. The condition of the wrist was remarkable; the swelling had disappeared and the joint was only painful on the fullest movements. Same diminution appeared on ganglion. 1,250,000,000 of same in 1½ c.c. 19th: Very slight local reaction; wrist was entirely free; there was a slight grating unnoticed by patient. March 10th: Seen again. Patient was entirely free from any joint disorder and had no discharge.

CASE 6.—F, male, aged 38. Urethral gonorrhœal discharge, always slight, dated from one month ago; arthritis of several joints for three weeks; orchitis and epididymitis for five days. Patient could not move his wrist nor shoulder and could just hobble. He had been in bed and treated for ten days without relief. Jan. 11th, 1913: 250,000,000, in 1 c.c. saline, of sensitised polyvalent gonococcal vaccine preserved almost dry, one month. 13th: Very slight local and general reaction; temperature rose to 37·8° C. The disappearance of the pain was most remarkable. The wrist could be freely moved. There was, however, no diminution in the volume of the testicular mass. Discharge unaltered. He walked quite well. 500,000,000 of same in 2 c.c. saline. 15th: Very slight local and no general reaction. Pain had entirely disappeared. Epididymis and testicle just distinguishable, the former still sensitive to pressure. Discharge very small. 500,000,000 of same in 2 c.c. 18th: Very little local reaction, none general. Mass was gradually diminishing in volume and the elements were distinct. Feb. 12th: Patient reported that the same testicle had suddenly and without obvious cause become swollen and tender. The condition appeared to be only transitory and passed away. The testicle was not enlarged or tender, but there were two painful nodules, one in each globus of the epididymis. Discharge only seen each morning. 250,000,000 of same in 1 c.c. saline. 17th: No reaction; patient said there was no morning discharge. 500,000,000 of same in 1 c.c. saline. 24th: No reaction; the epididymis was again painful. Patient had passed blood with nocturnal emission and at stool. Prostate examined; appeared normal. 2,000,000,000, in 1 c.c saline, of sensitised gonococci (10 strains) prepared from a living culture 10 days old; specific serum; sensitisation at 37° C. 26th: Slight local reaction and headache for 12-36 hours. Pain and blood-flow disappeared. 2,000,000,000 of same in 1 c.c. saline. March 1st: Slight local reaction for 12-36 hours. 2,000,000,000 of same in 1 c.c. saline. Slight local reaction only. A small infiltration nodule alone persisted in the globus minor.

CASE 7.—G, male, in-patient. Gonorrhœal urethral discharge for three weeks; for several days both knees and shoulder-joint were swollen and painful; orchitis and epididymitis on left side; temperature 38·6° C. at 11 A.M. Dec. 15th, 1912: 500,000,000, in 1 c.c. saline, of a sensitised polyvalent (10 strains) gonococcal vaccine. 16th: No local reaction; the temperature rose in the evening to 39·3° C. and fell to 37·5° C. this day. The pain had disappeared from the knees and shoulder, and the fluid could now just be detected. The testicle was free from pain, except to pressure, and was smaller. The epididymis and cord remained very firm, but were not so sensitive. The improvement was so definite as to be striking. 18th: 500,000,000 of same vaccine in 2 c.c. saline. 19th: No general or local reaction; testicle normal; epididymis and cord still firm, but not tender. Patient was about the ward. 23rd: 1,000,000,000 of same vaccine in 1½ c.c. 24th: Slight local and general reaction. Jan. 6th, 1913: The discharge was unaltered, but of the orchitis there only remained a small nodular mass of the size of a small pea in the tail of the epididymis, and slight thickening of the cord.

CASE 8.—H, male, aged 28, in-patient. He had twice had generalised gonorrhœal rheumatism with about two years' interval. Then he had a third attack, again following fresh infection or relapse; this had never been relieved despite constant treatment, including antimeningococcal serum during 50 days—doses 5-30 c.c. with 11 days' interval. The patient could not move the knees, thighs, vertebral column, or shoulders, and there was slight stiffness in most other joints. Only the knees contained an exudate and were painful; the shoulder joints were also painful. The patient had been rigid and confined to bed since this last attack, a period of five years. Feb. 26th, 1913: 1,000,000,000 in ½ c.c. saline of sensitised gonococci (18 strains) prepared from a living ten days old culture; specific serum; sensitised in stove and cupboard. March 1st: Very slight local reaction. The night and day following injection the patient had headache and malaise. The temperature was as follows: 26th, evening, 37·6° C.; 27th, morning, 38·2° C.; evening, 38·3° C.; 28th, morning, 37° C.; evening 37° C. The pain in the knees was markedly diminished; no fluid in right knee-joint; a little still remained in the left. 2,000,000,000 of same in 1 c.c. saline. 3rd: No reaction; condition unchanged. 3,000,000,000 of same in 1 c.c. saline. 5th: No reaction. 3,000,000,000 in 1 c.c. with ½ c.c. antigonococcal serum. 8th: Local reaction, area 6 cm., painful; after two days still infiltrated; knees not painful. 3,000,000,000 of sensitised gonococci in 1 c.c. saline (14 hours at 37° C., serum A). 10th: Very slight local reaction. Left knee free from fluid and much less pain, and that only on attempting movement. 6,000,000,000 of same in 2 c.c. saline. Slight local reaction only. A sudden change from the fine weather brought back the same condition to the knees. The patient remains under treatment.

CASE 9.—I, male, aged 21. Gonorrhœal urethral discharge; marked lymphangitis and paraphimosis; chancre on the lower lip one month; duration of discharge 25 days. He was receiving mercurial injections. March 1st, 1913: 2,000,000,000, in 1 c.c. saline, of sensitised gonococci (18 strains) prepared from a 10 days old living culture; specific serum, sensitised in incubator and cupboard. No general reaction followed, and very slight local reaction on the day following. As the patient was to receive 30 eg. of neosalvarsan on March 4th, I postponed vaccination. I remarked that in this case neither mercurial injections nor acute syphilis influenced the reaction, nor was the reaction to neosalvarsan marked.

CASE 10.—J, female, aged 19, out-patient. Gonorrhœal vaginal discharge for 2½ years; tendinitis of tendo Achillis with exudation for ten days; less swollen during last two days, but still very painful. March 1st, 1913: 2,000,000,000 in 1 c.c. of sensitised gonococci, polyvalent; Serum A; sensitised in incubator and cupboard. 3rd: Erythema and œdema over area of 10 cm. on arm; headache 24 hours; pain less; swelling hardly noticeable. 1,500,000,000 of same in 1½ c.c. saline. 6th: Reactions similar; pain still less; no swelling. 1,500,000,000 in ½ c.c. saline and ½ c.c. antigonococcal serum, the mixture not being centrifuged after sensitisation. 8th: Reaction similar, but extremely painful; feverishness, 38° C. It was noticed that there was always pain if the serum were not removed. The pain of the tendinitis and the exudation had entirely disappeared

CASE 11.—K, male, aged 23. Sycosis of the beard on the right side and of the moustache and right eyelids; duration 18 months. Culture: Staphylococci aurei and albi. Much previous treatment. Face never irritating. Dec. 7th, 1912: 30,000,000, in 1 c.c. saline (a vaccine made 16 days), staphylococci citrei. No local or general reaction, but patient complained of a marked itching of the face the night following the injection. 9th: 30,000,000, in 1/10 c.c. saline, of a sensitised vaccine, staphylococci aurei isolated from a patient with a suppurating ganglion following a whitlow of the finger. No reaction. This is in marked contrast to the fact that I gave exactly the same dose, first injection, to another patient, and a large abscess followed. Pus from the latter gave the staphylococci aurei pure. 12th: 60,000,000 in 1/5 c.c. saline; no reaction. 19th: 150,000,000, in 1 c.c. saline, of his own isolated staphylococci aurei (sensitised, living). 21st: The external surface of the whole upper arm was red, hot, and œdematous; no temperature. 23rd: Less area was affected, but a localised abscess was forming. This abscess exuded much pus from day to day, leaving on Jan. 11th, 1913, a small area of 2 cm. of indurated subcutaneous tissue that pitted on hard pressure. He never had an elevation of temperature over 37·3° C. This strain has in all cases shown most marked virulence. The other vaccines had not vaccinated for this high initial dose. Until the formation of the abscess the improvement in the patient's condition was slow but manifest; and there was no spread of the disease. Since the abscess the condition was worse, and the other side of his moustache region was now affected. Jan. 11th: 50,000,000 of same vaccine (autogenous) in 1 c.c. saline. Slight local reaction, no general reaction; no temperature. 13th: Same dose, 50,000,000 in 1 c.c. saline. The face was remarkably better. There were no new pustules, and the inflammation had subsided. The patient had never had any itching of the face. The abscesses were most rapidly healing up. 15th: No reaction. The beard area continued in a satisfactory condition. Only the regions of the moustache and eyelashes were inflamed. 50,000,000 of same in 1 c.c. saline. 18th: No reaction. Condition most satisfactory; no pustules. 100,000,000 of same in 1 c.c. saline. 20th: Erythema 10 cm., œdema 6 cm.; no general reaction. The moustache and eyelid areas were but red, the former also scaly. There were no pustules. 23rd: All reaction had passed. 100,000,000 of same in 1 c.c. saline. 24th: No reaction. Eczematous condition of upper lip alone remained. 29th: 150,000,000 of same in 1 c.c. saline. Feb. 4th: Small abscess formed at site of injection. Pus removed by a pipette gave pure staphylococcal cultures aerobically and anaerobically. 12th: A small pocket of pus had not absorbed, and so was drawn off by a pipette. Condition unchanged; no new pustules. 150,000,000 of same in 1 c.c. saline. 15th: Slight local reaction during two days. 200,000,000 of same in 1 c.c. saline. 17th: A red nodule appeared at point of inoculation with no serous œdema; no general reaction; satisfactory condition persisted. This may be contrasted with the fact that he was never free from pustules during 18 months of constant treatment, including electrolysis prior to vaccination. 200,000,000 of same in 1 c.c. saline. 19th: Slight transitory local reaction, none general. There were no pustules, and all that remained were two or three patches of hardened epidermal tissue where the eczematous condition had been most marked. 24th: Progress persisted. 250,000,000 of same in 5/8 c.c. saline. 26th: Local redness and infiltration of 3 c.m. in diameter persisted. Cure persisted. March 1st and 3rd: Cure persisted. On the 3rd injection of 500,000,000 of same in 1 c.c. saline. 6th: Slight erythema only. Local reaction of Feb. 26th passing. 10th: Reactions passed. Face still quite clear. It is interesting to note to what a high resistance the patient had been prepared when commencing with a smaller dose.

CASE 12.—L. Furunculosis for several months; had not been ameliorated by dead unsensitised vaccines or ordinary treatments. Culture pure staphylococci aurei. Sept. 26th, 1912: 1,000,000 autogenous sensitised living staphylococci aurei. No local or general reaction; no temperature; no new pustules. 29th: 2,000,000 in ¼ c.c. saline 0·8 per cent. No local or general reaction; temperature 37·6°C. next day; condition same. Oct. 5th: 5,000,000 in 1½ c.c. saline 0·8 per cent. Local redness 1 square inch on the following day; no subjective symptoms; no temperature. Improvement in pustules slight. Oct. 8th: 12,500,000 in 1 c.c. saline. Slight local tenderness; redness 1 square inch; no general symptoms. The local tenderness lasted during three days. Oct. 12th: 25,000,000 in 2 c.c. saline. Very slight local and no general reaction. Nov. 21st: 16,000,000 in 1½ c.c. saline. Very slight local reaction; no general reaction. 23rd: 32,000,000 in 2½ c.c. saline. The local reaction was noticeable; there were œdema and erythema about 2 inches in diameter which disappeared on the fourth day; highest temperature 37·5° C. 27th: 32,000,000 in 2½ c.c. saline. Slight œdema and erythema locally the day following, which disappeared after two days; highest temperature 37·6° C. Dec. 2nd: 56,000,000 in 1¾ c.c. saline. No local or

general reaction. 4th: 56,000,000 in 1½ c.c. saline. No local or general reaction. 7th: 100,000,000; very slight local and no general reaction.

During the first course of five injections in the months of September and October the improvement was noticeable, but not definite. A smaller number of new pustules appeared than during the three weeks previously, and were not so large or so vicious-looking, and there was a tendency to more rapid healing in the old and new ones. During the second course of six injections the improvement was definite, and prior to the last injection the patient was completely cured. Only three new non-pustular inflamed areas had appeared. It was striking to see this benign form. The patient did not cease work during the treatment.

CASE 13.—M, male, aged 40, out-patient. Furunculosis of neck, duration some months. On the back of the neck were several large suppurating furuncles. On the front was one large mass suppurating and with a deeply infiltrated base. Local treatment had failed to give relief during 2½ months. Culture staphylococcus aureus. March 1st, 1913: 250,000,000, in 1 c.c. saline, of sensitised living staphylococci aurei isolated from a pustule of sycosis in another patient (Case 11, K), and conserved for two months in an ice chamber. 3rd: No reaction generally, slight locally; condition unchanged. 500,000,000 of same in 2 c.c. saline. 5th: Slight local, no general reaction; affected areas much less inflamed and infiltrated; amelioration most marked. 500,000,000 of same in 2 c.c. saline. 8th: Local reaction slight. The night of the 6th the patient had a "cold shiver," and then became feverish, with free perspiration all night. He kept his bed on the 7th. The improvement in the affected areas was truly extraordinary. The infiltration had almost all been absorbed and the original pustular parts cicatrised up. The preservation of this vaccine here shows that it does not lose its powers by keeping, as I thought possible, and the almost constant good results from this strain were again evident. 12th: The patient was in quite good health.

CASE 14.—N, male, aged 20, out-patient. Papulo-pustulous acne of the face and trunk during 2½ years. Culture from serum below the pus of surface gave a pure growth of staphylococcus pyogenes aureus. Slide showed Gram-positive cocci. Vaccine: Autogenous sensitised living in saline 0·8 per cent.; Russian serum was used for sensitising. Nov. 23rd, 1912: 5,000,000 in 1 c.c. saline; no reaction, local or general. 27th: 5,000,000 in 1 c.c. saline. Erythema locally over the same area as where the tincture of iodine had been; no general reaction. Dec. 2nd: 20,000,000 in ¼ c.c. saline; no local or general reaction. 4th: 40,000,000 in ¼ c.c. saline; no local or general reaction. 7th: 80,000,000 in 1 c.c. saline; very slight local reaction. 10th: 160,000,000 in 2 c.c. saline; very slight local reaction. 19th: 200,000,000 in 1 c.c. saline; very slight local reaction. No other treatment applied.

This case has responded ideally to the living vaccine treatment. The patient was extremely despondent when he presented himself for treatment. The improvement was noticeable after the first injection; the affected area of the beard became drier, and when any new pimples tended to form they were in the early part of the treatment only slightly pustular, and in the later little red points that did not suppurate. In the early stages the patient complained of severe itching of his face and chest, but later this disappeared.

Feb. 5th, 1913: The same satisfactory condition was again present. 25,000,000 of his own sensitised vaccine in 1 c.c. 17th: No reaction. The patient would not remove his comedones and it was interesting that these did not suppurate.

CASE 15.—O, male, aged 20, out-patient, of small and delicate stature. Acne, keloid in character on the back of his neck, pustular on the face and shoulders. In some places the disfiguring cicatricial scars were 3 cm. in size. The face, neck, and shoulders are pitted with comedones. Culture gave staphylococci aurei and albi. Feb 15th, 1913: 25,000,000, in 1 c.c. saline, of sensitised living staphylococci aurei cultured from acne pustule in previous patient (Case 14). 17th: No reaction. 50,000,000 of same in 2 c.c. saline. 22nd: Transient local reaction; condition unchanged. 250,000,000 of same in 1 c.c. saline. 28th: No reaction. No new pustules; the old ones were much less inflamed. 250,000,000, in 1 c.c. saline, of sensitised living staphylococci albi cultured from an acne pustule of the following patient (Case 16), preserved two months. March 3rd: Slight local reaction for 12–36 hours; improvement continued. 500,000,000 of same in 2 c.c. saline. 5th: Slight local reaction; very fatigued the night of injection. 1,250,000,000 (Case 14) in ½ c.c. saline. 8th: Slight local reaction; progress was slow. 250,000,000 in 1 c.c. of living sensitised staphylococci aurei (from K, Case 11). 12th: No reaction. One old large cervical gland was now suppurating and was opened. Condition showed marked improvement. It may be noted how I proceeded in preparing the patient for the large dose of the virulent strain (K, Case 11).

CASE 16.—P, girl, aged 8. Acne of the back from the shoulders to the loins. The pustules were large, inflamed bases, no induration of marked degree. Duration one month. The appearance of the pustules was sudden and the numbers progressed until vaccine treatment was commenced. No comedones were to be seen. Culture: staphylococci albi (E). Serum Russian. Dec. 16th, 1912: 10,000,000 in 1/10 c.c. of an autogenous sensitised vaccine of living staphylococci albi; no reaction. 19th: 25,000,000 of same in ¼ c.c.; no reaction; patient complained that the pustules itched. 23rd: 50,000,000 in ½ c.c.; no reaction. The pustular area continued to itch. The progress was most rapid and the condition wonderfully improved. The mother, a close observer, had remarked the appearance of three new pustules which burst soon after. I had noted here, as often before, that after vaccination the pimples are small and rarely contain pus; but if they do they quickly discharge themselves. The old pustules are almost all dried up. 25th: 50,000,000 of same in ½ c.c. saline; no reaction. No new pimples or red spots. The condition was practically entirely cured. Jan. 6th, 1913: The patient returned for examination. She was completely cured, a few pale red areas of healing former pustules being all there was to be seen. No other treatment was applied, not even washing with hot water.

CASE 17.—Q, girl, aged 17 years. Acne of face and body for 5 years; very few comedones; greasy skin. Culture gave staphylococci aurei and albi; most colonies were albi. Jan. 19th, 1913: 50,000,000 in 1 c.c. saline of sensitised living staphylococci aurei from a previous case of acne (N, Case 14). 21st: Slight local erythema on day following injection. 50,000,000, in ½ c.c. saline of sensitised living staphylococci albi from another case of acne (X). 25th: Reaction as before. 75,000,000 of vaccine (N, Case 14) in 1 c.c. saline. 27th: Again slight erythema during 12–36 hours. 75,000,000 of vaccine of (X) in 1 c.c. saline. Feb. 1st: No reaction. 250,000,000 of vaccine (N, Case 14) in 1 c.c. saline. 3rd: Slight local reaction lasting 12–48 hours. Only one small pustule had appeared; the old ones were but red and disappearing. 250,000,000 of same in 1 c.c. saline. 12th: No reaction. Progress had continued and there were but two or three red spots on the face, and a small pustule on the back. 250,000,000 of same in 1 c.c. saline. 15th: Very slight local reaction. There were no pustules to be seen, and the patient was apparently cured. 250,000,000 of same in 1 c.c. saline. March 12th: Patient had remained entirely free from her old infection and had been in much improved general health since the vaccination.

CASE 18.—R, woman, aged 30. Four large plaques of seborrhœic eczema on the abdomen, which irritated. Culture gave staphylococci albi. Dec. 12th, 1912: 100,000,000 in ½ c.c. saline of autogenous sensitised living staphylococci albi in arm subcutaneously. The local reaction was rather marked. There were an erythema of 6 cm. diameter, slight œdema, and pain on pressure. After four days it had passed. General reaction not observed. 18th: 50,000,000 of same in ½ c.c. Slight local, no general reaction. Areas of eczema dried, and no itching. 21st: 100,000,000 in 1 c.c. saline in two injections 1 inch apart. Slight local reaction during the 24–60 hours that followed. Condition improved. 23rd: 150,000,000 in 1½ c.c. saline in two separate injections 1 inch apart. A slight reaction followed. The drying up of areas was remarkable, and the patient needed no further treatment.

CASE 19.—S, aged 8. Seborrhœic eczema, type impetiginous, of both ears. The area affected on the left side extended to the face and back to the scalp. On the right side it affected the upper part of the ear and adjoining part of the scalp. It had lasted three months, and was slowly spreading. The areas were red, exuding, and partly covered by scabs. Cultures gave staphylococci aurei and albi; the colonies of each about equal. Dec. 21st, 1912: 5,000,000 of sensitised living staphylococci aurei isolated from sycosis case (N, Case 14) in 1/20 c.c. saline; no reaction. 23rd: 12,000,000 of same in ½ c.c. saline; no reaction, no progress. 25th: 50,000,000 of sensitised living staphylococci albi (P, Case 16) in ½ c.c. saline; no reaction, no progress, no march of the condition. A fortnight's rest was given. When examined on the return of the patient on Jan. 6th, 1913, the right ear area was drier and better; the left had not changed. 6th: 12,000,000 (vaccine of N, Case 14) in ½ c.c. saline; no reaction. 8th: 20,000,000 of same in 1 c.c. of saline; slight reaction locally; the redness of area around the injection lasted. The condition was markedly improved; the right ear was practically healed; the left was drier, less inflamed and less red. This rapid progress following the commencement of a second course of vaccination was often striking. 11th: 12,000,000 of same in 1 c.c. saline; no reaction. Condition rapidly improving. 13th: 12,000,000 of same in 1 c.c. saline. 15th: Slight local reaction, probably due to iodine tincture used. An apparent relapse of the condition was noticed. 18th: 12,000,000 of same in ½ c.c. saline. No reaction. Condition tended to dry and apparently heal. 20,000,000 of same in 1 c.c. saline. 25th: No reaction. Only the slight redness remained. 25,000,000 of same in ½ c.c. saline. 29th: No reaction; satisfactory condition persisted. 25,000,000 in ½ c.c. of sensitised living staphylococci aurei of Manj. Feb. 1st: No reaction; patient cured. 25,000,000 in ½ c.c. of sensitised living staphylococci aurei of N (Case 14). March 17th: No reaction; patient remained free from his eczematous condition.

CASE 20.—T, infant aged 17 months, out-patient. Impetigo of the newly born. Eight days previously two serum-containing blisters had appeared, and after bursting had formed scaly sores of 5 cm. in area, which were tending to heal in their centres, but were inflamed and extending at their borders. Culture gave staphylococci aurei pure. Jan. 15th, 1913: 1,000,000, in ¼ c.c. saline, of a sensitised streptococci living, and isolated from a discharge of C (Case 3). 18th: No reaction. One new but not inflamed-looking and small blister on the abdomen. The old plaques were less inflamed and tended to heal. 5,000,000 of same in ¼ c.c. saline. 20th: No reaction. Improvement most marked in old plaques, which were this day dry, and only inflamed at two parts of their border. One more recent bullous patch did not inflame. 12,000,000 of same in 1 c.c saline. 22nd: No reaction. One new bullous patch had appeared and burst without inflammation; old areas healed. 20,000,000 of same in 1 c.c. saline. 25th: Slight local reaction the day of the 23rd only. Condition healed. 12,000,000 of living sensitised staphylococci albi (P, Case 16) in 1 c.c. saline. 29th: No reaction. 25,000,000 of same in ½ c.c. saline. Feb. 1st: Slight induration and redness locally during 3 days. One small bullous vesicle appeared and burst without inflaming. 25,000,000 of sensitised, now dead, streptococci as before in ¼ c.c. saline. 3rd: No reaction. The patient was again seen on March 12th; had had no new vesicles, and was discharged cured. No other treatment was applied.

CASE 21.—U, girl. Impetigo contagiosa during one year. The head, face, arms, and legs were affected. The head was particularly sore, exuding, and encrusted. The hair was sparse. Culture gave streptococci in rich culture and staphylococci albi. Oct. 5th, 1912: 1,000,000 streptococci sensitised and killed by heat, one hour 60° C., autogenous; no reaction. 8th: 100,000 living sensitised autogenous streptococci in ½ c.c. saline, in arm subcutaneously. 12th: 300,000 of same in 1 c.c. saline. No local reaction followed any of these inoculations. I noticed on the 14th that the face and body showed signs of improvement, and I left the vaccine aside to watch the condition another few days. The progress continued, and after two months the child was practically cured and had much hair on the scalp. I think the slight stimulation produced the resistance necessary to the child. No other treatment was applied.

DONATIONS AND BEQUESTS. — Mr. Samuel Newton, J.P., has endowed a cot at Ashton District Infirmary at a cost of £1000.—Mr. Murdoch McLeod, of Lytham, left the residue of his property—£4500 net—to be divided equally between the Manchester Royal Infirmary and the Christie Hospital, Cancer Pavilion and Home.—At a recent meeting of the Governors of Nottingham Hospital it was reported that when Mr. R. M. Knowles, a former high sheriff of the county, was asked to give some evergreens for ward decorations at Christmas he sent instead a cheque for £1000, suggesting that that might be of more permanent use.

THE TESTS FOR ACETOACETIC ACID, INCLUDING A SIMPLE NEW TEST.

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THE tests at present in use for detecting acetoacetic acid, excluding those which depend upon its conversion into acetone, are as follows:—

1. *Addition of a solution of ferric chloride.*—This test was discovered by Gerhardt[1] in 1865. He found that the reagent only gave the characteristic colour with the urine of some and not with that of all diabetic patients, and with the urine of notorious drinkers. For a long time he was unable to ascertain what the substance was which caused the colour formation; he then observed that the colour was identical in appearance with that given by a substance which Geuther had obtained in 1863 from ethyl acetate by acting upon it with sodium and acidifying the product. Geuther called his new compound diacetic acid ether, and also dimethylene-carbonic-acid ethylene ether, and later (1865) he called it ethyl diacetic acid. He showed that it could easily be decomposed into acetone, carbon dioxide, and alcohol. This compound is now called ethyl acetoacetate, and Gerhardt believed that it was this substance which caused the colour when ferric chloride was added to certain urines; he also expressed the opinion that acetone, which had been found in diabetic urine ten years before his discovery, is a decomposition product of diacetic acid ether.

Deichmüller,[2] at the instigation of Ebstein and Tollens, and Tollens[3] showed in 1881 that ethyl acetoacetate does not occur in diabetic urine, for if it did such a urine should yield by suitable treatment very nearly four parts of alcohol for every five parts of acetone. They distilled two litres each day of a urine which gave a strong iron reaction until they had worked up 40 litres. From this distillate they prepared pure acetone, but they could obtain no test at all for alcohol. Tollens also showed that if ethyl acetoacetate is added to a urine and the urine is then distilled some of the substance always distils unchanged, and the distillate smells of it and gives a colour with ferric chloride; a diabetic urine never does this. They therefore concluded that the colour-producing substance was acetoacetic acid or its salts, not its ester.

The name diacetic acid, which was originally applied by Gerhardt, following Geuther, to ethyl acetoacetate, is still often used as a name for acetoacetic acid; its use might very well be discontinued. The delicacy of the ferric chloride test when tried on a solution of sodium acetoacetate is very nearly 1 in 100,000; it is less than this in urine on account of the presence of other substances which give a red colour with the iron salt. It has also the disadvantage that numerous drugs give with ferric chloride a violet colour very similar in tint to that given by acetoacetic acid.

2. *Arnold's test.*[4 5]—This valuable test does not appear to be as well known as it deserves to be. Two solutions (*a*) and (*b*) are made as follows. (*a*) 1 grm. of para-amino-acetophenone is dissolved in a little water with the aid of 2 c.c. of concentrated hydrochloric acid, and the solution is made up to 100 c.c. (*b*) 1 grm. of sodium nitrite is made up to 100 c.c. Two volumes of (*a*) and 1 volume of (*b*) are mixed, and an equal volume of urine is added to the mixture, then a drop or two of strong ammonia. A reddish-brown precipitate is produced. To a portion only of this a large excess of concentrated hydrochloric acid is added (15 c.c. to 2 c.c.). If acetoacetic acid is present a fine purple colour is produced. Arnold strongly recommends filtering the urine through animal charcoal before applying the test. He states that in this way the delicacy of the test is increased and also more urine can be added to the mixture of (*a*) and (*b*) than can be added if unfiltered urine is used.

Lipliawsky[6] states that the sensitiveness of the test is increased if, after adding the hydrochloric acid in excess, 3 c.c. of chloroform and 2 to 4 drops of ferric chloride are added, and this mixture cautiously shaken in such a way as to avoid an emulsion; the purple colour is taken up by the chloroform, forming a very stable solution. The explanation of the colour is that the aminoacetophenone is diazotised, forming the compound $CH_3CO.C_6H_4.N:N.Cl$, which couples up with the acetoacetic acid and produces the colouring matter, $CH_3CO.C_6H_4N:N\,CH\langle\begin{matrix}CO.CH_3\\COOH\end{matrix}$. This formula is given to it by Riegler,[7] who obtained it in a crystalline condition.

The test is very delicate—1 in 40,000 according to Lipliawsky.[6] Ethyl acetoacetate gives the test as well as acetoacetic acid and its salts, but as far as is known it is not given by any other substances. It can be applied, therefore, to the urine of patients who have been taking salicylic preparations, antipyrin, and the like.

Arnold[5] claims to have shown by this test that acetone only occurs in urine in the severest cases of so-called acetonuria, such as grave cases of diabetes. Thus in a case where Legal's acetone test is positive, while Gerhardt's test is negative, Arnold's test for acetoacetic acid is positive; and if the urine in such a case be just alkalised with sodium carbonate and shaken with ether the ethereal extract will show neither Legal's nor Arnold's test, whereas if acetone were present it should show Legal's test but not Arnold's. If the urine is now acidified with sulphuric acid and extracted with ether the extract will show both tests.

3. *Absorption of iodine.*—This test is due to Riegler.[8] 15 c.c. of urine are shaken with 2 c.c. of a 10 per cent. solution of iodic acid and 2 to 3 c.c. of chloroform. In the presence of acetoacetic acid the chloroform remains colourless; in its absence the chloroform is coloured violet by liberated iodine. The explanation of the test is that there are substances present in urine which reduce iodic acid to hydriodic acid, which is then oxidised by unchanged iodic acid to water and iodine, the latter colouring the chloroform unless acetoacetic acid is present, in which case iodoacetoacetic acid—a colourless substance—is produced:

$$CH_3COCH_2COOH + I_2 = CH_3COCHICOOH + HI.$$

The chief substance in urine which reduces iodic acid is uric acid; but some urines contain so little uric acid in the amount taken for the test that no iodine is liberated. To overcome this difficulty Riegler[7] modifies his test thus: To 1 to 2 c.c. of a normal urine 2 c.c. of 10 per cent. iodic acid and 3 c.c. of chloroform are added; on shaking the chloroform is coloured violet; now 10 c.c. of the urine to be tested are added and the whole well shaken. If acetoacetic acid is present the colour of the chloroform disappears.

Lindemann[9] pointed out that the conditions necessary for success in applying Riegler's test are that the solution to be tested must be acid and that iodine must be present. He therefore modified the test in this way: 10 c.c. of the urine are acidified with 5 drops of 30 per cent. acetic acid, 5 drops of Lugol's iodine solution (1 grm. iodine, 2 grm. potassium iodide, and 100 c.c. water) are added, and this mixture is shaken with 2 or 3 c.c. of chloroform. No colour appears if acetoacetic acid is present in the urine.

In this form the test is approved by Riegler,[7] who points out that an idea of the amount of acetoacetic acid present can be formed from the amount of the iodine solution required to be added to produce a violet colour in the chloroform. The test is described as being more delicate than Gerhardt's, but less delicate than Arnold's. No other substance, which is likely to occur in appreciable amount in a urine, than acetoacetic acid gives the test.

Quite recently this test has undergone a further modification by Ondrejovich[10]: 5 c.c. of the urine are acidified with 5 drops of 50 per cent. acetic acid, and 1 drop of a 1 in 2000 solution of methylene blue is added; the liquid should be distinctly blue. On adding 4 drops of tincture of iodine the liquid turns red, but if acetoacetic acid is present in the urine the red colour turns blue or green at a speed which depends on the amount of the acetoacetic acid present.

Ondrejovich points out that if the urine is made too acid the restored colour of the methylene blue is green instead of blue; also that there are substances in urine besides acetoacetic acid, such as indican, which combine with iodine, but they are present in minute amounts and act far more slowly than acetoacetic acid. It is clear that this test is quantitative in the same sense as Lindemann's modification described above. No other substance than acetoacetic acid shows the test. Ondrejovich claims that it exceeds all the previous tests in delicacy. In this form the test is certainly a valuable and a sensitive one. In using the test I find that Lugol's iodine solution acts quite as well as tincture of iodine; also that when the amount of acetoacetic acid is very

small the iodine—even Lugol's, which is less than half the strength of ordinary tincture of iodine—must be added very cautiously. Thus, 5 c.c. of a 0·01 per cent. solution of pure acetoacetic acid would only require two drops of Lugol's iodine solution.

4. *Rothera's modification of Legal's test.*—This test—which consists in adding 5 grm. of ammonium sulphate to 10 c.c. of the urine, then 3 drops of a 5 per cent. solution of sodium nitroprusside (freshly made), and 2 c.c. of strong ammonia, when a fine permanganate colour is obtained—is described by Rothera[11] as characteristic for acetone. The limit of delicacy of the test is given by Rothera as 1 part of acetone in 20,000, at which dilution the colour requires half an hour to develop. I find, however, that the test is far more delicate for acetoacetic acid than it is for acetone; the permanganate colour is developed with acetoacetic acid in the form of its sodium salt at a dilution of 1 part of the acid in 100,000 very distinctly in two minutes, and faintly at a dilution of 1 in 400,000 in five minutes. Rothera states that both ethyl acetoacetate and acetoacetic acid fail to give the permanganate colour with his test. Owing to the kindness of Dr. F. G. Hopkins I am able to give what appears to be the correct explanation of this discrepancy. Dr. Hopkins informed me that Rothera's test for acetone is inhibited by the presence in the acetone of ethyl acetoacetate. Acting upon this information, it was found that quite small quantities of the ester completely inhibited the test when applied to the acid.

That the test is really a test for acetoacetic acid as well as for acetone is shown by the following experiments. 13 grm. of chemically pure ethyl acetoacetate were treated with 100 c.c. of normal caustic soda solution, and the mixture was made up to 500 c.c. In 16·5 hours at the room temperature (20° C.) 25 c.c. of this solution required 0·45 c.c. one-fifth normal sulphuric acid for neutralisation; in 44·5 hours it required 0·1 c.c. of this same acid for neutralisation—that is, the ester was practically all saponified. From this a solution was made containing an amount of sodium acetoacetate equivalent to 1 grm. of acetoacetic acid in 1000 c.c. A solution of chemically pure acetone was made containing 1 grm. of acetone in 1000 c.c.

(*a*) By means of a pump a rapid current of air was drawn through 100 c.c. of the acetone solution. After three hours' suction the liquid failed to give Rothera's test for acetone. By means of the same pump air was drawn for three hours through 100 c.c. of the acetoacetate solution; it gave the test as strongly after the suction as before it.

(*b*) 100 c.c. of each of the above solutions were heated side by side in a boiling water bath in flasks provided with efficient reflux condensers for one hour. At the end of this time the acetone solution gave the test unimpaired in strength; but the acetoacetate solution having been hydrolysed to acetone now gave a feebler test than the acetone solution, for 0·1 grm. of acetoacetic acid only gives 0·057 grm. of acetone on complete hydrolysis.

Legal[12] says of his own test that it is a test for acetoacetic acid, as well as for acetone, but not a test for ethyl acetoacetate. It would appear, therefore, that Arnold's statement that acetone is of rare occurrence in urine is probably correct; the usual clinical tests applied for the purpose of detecting the supposed acetone are really tests for acetoacetic acid.

5. *A new test.*—This is performed as follows: To 10 c.c. of the urine add 2·5 c.c. of concentrated hydrochloric acid and 1 c.c. of a 1 per cent. solution of sodium nitrite; shake and allow to stand two minutes. Now add 15 c.c. of strong ammonia, followed by 5 c.c. of a 10 per cent. solution of ferrous sulphate or a solution of ferrous chloride of equivalent strength (2 grm. of iron in 100 c.c.). Shake up, pour into a 50 c.c. Nessler glass, and allow to stand undisturbed. It is not advisable to filter. A beautiful violet or purple colour is produced. The reaction is a *slow one*, and the speed at which the colour develops depends on the concentration of the acetoacetic acid in the urine; the colour deepens for several hours after its first appearance.

The explanation which I offer of the test is that the acetoacetic acid is converted by the nitrous acid into isonitrosoacetone, which forms a salt with the ammonia; the ferrous salt then produces a purple-coloured salt from the ammonia salt by double decomposition.

$$\underset{\text{Acetoacetic acid.}}{CH_3CO.CH_2COOH} \rightarrow \underset{\text{Isonitrosoacetone.}}{CH_3CO.CH:NOH} \rightarrow \underset{\text{Ferrous salt.}}{(CH_3CO.CHNO)_2Fe}$$

That isonitrosoacetone in alkaline solution forms coloured salts on the addition of ferrous sulphate was first shown by Dr. Martha A. Whiteley.[13] The test has been tried on several normal and on a large number of pathological urines, and on the urine of patients taking salicylic preparations; but only urines which react with the other tests for acetoacetic acid give this test. Acetone does not give the test, but an aqueous solution of ethyl acetoacetate gives a pure blue colour—not a purple—and it only gives the blue colour when much more nitrite is used than is prescribed in the test above. As regards delicacy, the test, when performed on a solution of sodium acetoacetate, prepared in the way already described, shows at a dilution of 1 part of acetoacetic acid in 50,000 parts of solution.

Of all the tests described it seems the most suitable for obtaining an idea of the amount of acetoacetic acid present in a urine. For this purpose a solution containing the equivalent of 1·0 grm. acetoacetic acid per 1000 c.c. is prepared (*ante*). From this, by dilution, solutions containing the equivalent of 0·025, 0·02, 0·15, 0·01 grm. of acetoacetic acid in 100 c.c. are prepared.* The test is now performed according to the prescription given on 10 c.c. of each of these four and on 10 c.c. of the urine. If the colour develops much more quickly in the urine than in the 0·025 solution, the urine must be diluted 10 or 20 times, and the test repeated on the diluted urine. In four or five hours the colours will be well developed and the initially turbid liquids will have become quite clear, the urine can be placed in its position among the standards, and so the percentage of acetoacetic acid is determined with fair accuracy. In order to test the accuracy of this method the "total acetone" in the urine of a diabetic patient was determined by the paranitrophenylhydrazine method of Möller.[14] The results are given in the table and the amount of β-hydroxybutyric acid is included.

Date.	Per cent. acetoacetic acid by colour method.	Per cent. "total acetone" calculated as acetoacetic acid by Möller's method.	Per cent. β-hydroxybutyric acid.	Total urine, c.c.
Feb. 24th, 1913 ...	0·25	0·31	0·88	3880
,, 25th ,, ...	0·40	0·30	1·09	3960
,, 27th ,, ...	0·31	0·30	0·82	3420
,, 28th ,, ...	0·30	0·32	0·82	3670
March 1st ,, ...	0·30	0·33	0·92	3220
,, 2nd ,, ...	0·30	0·28	0·97	3600
,, 3rd ,, ...	0·30	0·38	0·83	3460
,, 4th ,, ...	0·30	0·33	0·92	3760
,, 5th ,, ...	0·24	0·24	0·62	1655
,, 6th ,, ...	0·24	0·19	0·46	2900

It will be seen that the colour method gives quite a satisfactory idea of the amount of acetoacetic acid present in a urine; also that even in a severe case of diabetes there is not much acetone present as such in a fresh urine. The highest percentage of acetoacetic acid I have observed so far in four different cases and about 60 specimens of urine is the 0·4 per cent. recorded above, when 43 grm. of β-hydroxybutyric acid were excreted in the 24 hours.

This question of acetoaceturia (rather than acetonuria) is still engaging my attention. I propose to examine some of the methods for the separate determination of acetone and acetoacetic acid. I am greatly indebted to Dr. A. E. Garrod, F.R.S., for allowing me to have specimens from his ward; the four cases examined were all in his wards. I am also much indebted to Mr. E. Cahen, my assistant, for much help in the experimental work of the paper.

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* These standards do not keep longer than five or six days.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

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LATE ASSISTANT SURGEON, SOUTH DEVON AND EAST CORNWALL HOSPITAL.

THE patient, a woman aged 67 years, came as an out-patient to the South Devon and East Cornwall Hospital complaining of the inconvenience caused by a large tumour over the sacral region, which prevented her sitting or lying back with any comfort. She had a small lipoma in the right hypochondrium which had been there for over thirty years, and stated that the lump behind had been gradually enlarging for nearly four years. It measured about 10 in. by 6 in., was situated over the right sacrum and sacro-iliac joint, extending a little beyond the middle line; it was dull to percussion, of doughy consistency, no thrill, no definite fluctuation. I admitted her with a view of removing the tumour, which I took to be a lipoma or thyroid dermoid.

The tumour was more or less definitely encapsuled, but while freeing the base, which was firmly attached over the end of the ilium, I cut across a tube with a glistening membrane which turned out to be the lining of a hydatid cyst. A probe passed some 4 or 5 inches through a very small opening into apparently a bony cavity. I enlarged the opening and scraped out a considerable quantity of membrane and daughter cysts and drained the cavity. There seemed no connexion with the abdomen. The patient went on very well for some time, the wound gradually closing up, but she was the subject of chronic bronchitis, which troubled her a good deal, and suddenly her heart began to fail, and she died in two days.

At the post-mortem examination no hydatid could be found in any other organ of the body; the brain was not examined, but there was no reason to suspect anything wrong there. The ilium was found to be hollowed out into a large irregular cavity, with the remains of some membrane, and I can only conclude that it was the situation of the primary cyst, which had expanded and thinned the posterior margin, and finally burst through and overflowed into the subcutaneous tissues of the back. The patient had never been abroad, but had lived all her life in the neighbourhood.

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DURING the past few years I have been struck with the frequency of splenic abscess occurring in cases of so-called "malarial cachexia," and by the disappearance of the "cachexia" on treatment directed against the local condition. So common is it in my experience that I now make it a practice to look carefully for evidences of splenic suppuration in all cases of malaria with splenic enlargement which are resistant to ordinary treatment.

The points on which I rely in making a diagnosis in such cases are: (1) Continuance of fever under thorough quinine treatment and after the disappearance of all forms of the parasite from the peripheral blood; (2) local evidences of softening, pain, or adherence to the abdominal parietes; and (3) leucocytosis. What probably occurs in the spleen is the necrosis of areas of hypertrophied splenic tissue, this being followed by infection from the blood stream. Unfortunately I have not had the laboratory facilities at my disposal to determine the infecting organism in each instance. Below I append short notes of three cases.

CASE 1.—Male, aged 45, Tochi Valley; a small poorly developed man in advanced cachexia. The spleen was adherent to the abdominal wall, which was ideally thin for palpation. About 1½ pints of viscid, yellow pus were removed, and a soft drain was left in the wound. The man went out very much improved.

CASE 2.—Male, aged 35, Peshawar; in advanced cachexia. The adhesions were less firm in this case, and the surface of the spleen was first stitched to the abdominal wall before opening the abscess. About a quart of pus escaped, followed by a sharp hæmorrhage, but this was controlled by hot saline adrenalin solution. In spite of careful nursing the patient died from exhaustion three weeks later.

CASE 3.—Male, aged 30, Meshed; cachexia not marked. Recent scars from some native actual cautery over the splenic area. A pointing abscess in the abdominal wall leading into the large adherent spleen was opened, the lower margin of the spleen being very hard. About 1½ pints of thick pus escaped, being followed by slight hæmorrhage. Microscopically this pus contained leucocytes, myelocytes, a variety of organisms, but no malarial parasites. The patient went out greatly improved.

I have ventured to record these cases in the hope that the short notes may be of use to those who are working in tropical or subtropical climates, by directing attention to a common but little described cause of the persistence of apparent malarial cachexia.

NOTE ON A CASE OF ACUTE PULMONARY ŒDEMA IN AN INSANE PATIENT.

BY J. F. CORSON, M.D. VICT., D.P.H. O[illegible]
LATE ASSISTANT MEDICAL OFFICER TO THE BUCKS [illegible]

THE following case of death from acu[illegible] is of some interest on account of the [illegible] delusion of persecution which may ha[illegible] a previous pulmonary attack. M[illegible] due to Dr. H. Kerr, the med[illegible] the Bucks County Asylum, for pe[illegible] case.

The patient, a female, 30 years o[illegible] admitted to the Bucks County Asyl[illegible] She was pregnant and gave birth to [illegible] admission. Her mental state at th[illegible] depression, with anxiety and fears of [illegible] room. She was thin and rather anæmi[illegible] sounds were described as weak and muffled, [illegible] that there was no cardiac murmur. Her hea[illegible] and she became fat, and except for some slight [illegible] anæmia appears to have shown no symptoms of physical disease until her death. Her mind did not recover, and she became chronically maniacal, with frequently recurring exacerbations and remissions. About six months before her death she complained that another patient had put soap into her mouth whilst she was asleep in bed, and that it had nearly choked her. This was not regarded at the time as having any special significance. Her general health continued good, and she worked steadily at the ordinary housework of an asylum ward.

On April 1st, 1911, the patient was found dead in bed at 10.15 P.M. by the night nurse. When I saw her she was lying on her back, her nose and lips were covered with white froth, and her lips were livid. According to the accounts of fairly reliable patients in the same dormitory, she got out of bed shortly before 10 o'clock, and was seized with a severe attack of coughing. She returned to bed and the coughing continued for some minutes, and she complained of pain in the chest. She was quiet afterwards, and was thought to be better again.

At the post-mortem examination the heart was found to be hypertrophied, and weighed 12 oz. There was marked stenosis of the mitral orifice; the mitral valve was thickened and there were small vegetations on the cusps. The aortic valve cusps also showed small vegetations. Both lungs were distended and filled with frothy exudation.

The case appears to have been one of acute pulmonary œdema, and the delusion that soap had on one occasion been put into her mouth during sleep may have arisen from a previous attack.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SPECIAL MEETING OF FELLOWS.

Continued Discussion on Alimentary Toxæmia.[1]

A MEETING of the Fellows of the society was held on April 21st, Sir FRANCIS H. CHAMPNEYS, the President, being in the chair.

Mr. P. LOCKHART MUMMERY, in reopening the discussion, said that little was known as to the true pathology of alimentary toxæmia. He disagreed with Mr. Lane as regards the so-called adhesions found in cases of alimentary toxæmia, and pointed out that in many instances they were not real adhesions, but abnormal folds of peritoneum. He attributed the cause of this condition to the neglect of constipation in early life. He insisted upon the importance of a careful diagnosis to ascertain the cause of the stasis before attempting to cure the condition by operation, and deprecated the practice of performing a uniform operation in all cases. Mr. Mummery said he believed that many of the crippling cases of chronic arthritis owed their origin to alimentary toxæmia, and that the disease might be arrested in its early stage by proper treatment directed to cure the condition of the colon. As regards the choice of operation Mr. Mummery was in favour of appendicostomy when possible, and thought the more serious operation of ileo-sigmoidostomy should be reserved for those cases in which appendicostomy had failed to give relief. He attached considerable importance to careful after-treatment in these cases, and pointed out that acetonuria more frequently occurs after operation in cases of alimentary toxæmia than after operations in which this condition is not present.

Professor ARTHUR KEITH said that he came forward that evening as a representative of that humble and somewhat neglected group of men whose business it was to impart sound knowledge of the structure of the human body to medical students and medical practitioners. It seemed to him that the present generation of anatomists had appeared at an unfortunate time when medical men in general, and surgeons in particular, had lost faith in human and comparative anatomy as a source of help in enabling them to solve the practical problems of applied medicine. He wanted, therefore, to place before the Fellows the anatomist's point of view—so far as it bore on the present discussion. During the last 20 years our teaching and our research had been greatly influenced by the various movements which had cumulated in the present discussion. In reality this discussion centred round the nature and function of the great intestine. He would deal first with the formation of peritoneal adhesions—a matter which had received and which was receiving a great deal of attention from anatomists. Anatomists were at once brought face to face with one of the most striking of all the developmental changes seen during the growth of the fœtus. There could be no doubt that man came of a stock in which the mesentery and bowel were originally arranged in a primitive and simple manner, for in the second month of development the human intestine and its mesentery had the lineal arrangement seen in the lowest mammals. Then during the third, fourth, and fifth months of fœtal life a profuse adhesive process set in—a regulated embryological peritonitis—which led to the cohesion of mesenteries and viscera to the posterior wall of the abdomen—an adaption as they supposed to the upright posture, for it was only in those upright forms that we found these adhesive changes take place. After the fifth month the process of adhesion proceeded more slowly, and was completed about the time a child learnt to walk. The extent of the process was extremely variable. How variable it was one could readily see by consulting recent papers by Dr. Douglas Reid, the monograph by Dr. Henry M. W. Gray and Dr. W. Anderson, or the fine treatise on the appendix by Kelly and Hurdon. In about one newly born child out of every ten the process of adhesion would be found to have bound the mesentery of the lower part of the ileum to the pelvic fossa, giving the condition which was associated with ileal kinking. The extent to which adhesions were produced between the cæcum and ascending colon varied, but a condition which gave rise to a "Jacksonian membrane" was not rare; wide adhesions at the region of the hepatic and splenic flexures were always present—all these adhesions were parts of a normal embryological and useful process. They recognised, however, that all peritoneal adhesions in the ileo-cæcal region were not embryological and normal; one saw occasionally in adult bodies a degree of adhesion never seen in the child at birth, and anatomists recognised that some of the adhesions were the result of pathological processes. The majority of the adhesions, often regarded as pathological in nature, were in reality mere expressions of a normal and healthy fœtal process. The question of ptosis or dropping of the viscera was also one which had interested anatomists. They had recognised the frequency of this condition before they were aware that Glénard had scheduled visceroptosis as a distinct pathological entity, and long before they succeeded in convincing their colleagues, the clinicians, of the frequency and the importance of the condition. It was a fortunate circumstance that at that time the discovery of Roentgen placed a new means of inquiry in the hands of anatomists. A study of the living diaphragm convinced them that the essential feature of the abdominal viscera was not their fixity but their mobility; they were so attached that they could move freely with the respiratory tide. It became apparent to all of them that mesenteries and visceral ligaments only came into action when the limits of normal movement were reached; the musculature of the abdominal wall was the essential mechanism for supporting the viscera. The pathology of visceroptosis was, therefore, to be sought in a better understanding of the nerve relationships which existed between the viscera and their supporting walls. The researches of Sherrington, Hill, Mackenzie, Elliott, and many others showed them how closely the tone and contraction of the abdominal parietes were related to the posture of the body and to the condition of the viscera. They had not yet solved the problem of how the tone and contraction of the musculature of the body wall and of the alimentary canal were coördinated, but they had sufficient evidence to lead them to suspect they were regulated by a common nerve mechanism. It was probable that this mechanism might be acted on and deranged by pathological products generated in the intestine, and that visceroptosis was one of the manifestations of alimentary toxæmia. He now came to the essential question round which the present discussion had revolved: What is the functional value of the human great intestine? At the beginning of the present century a sharp divergence of opinion set in. In the years 1902 and 1903 three men—an anatomist, Barclay Smith, a bacteriologist, Metchnikoff, and a surgeon, Arbuthnot Lane—came independently and by a different train of reasoning to the same conclusion—so far as man was concerned the great intestine was not only a useless but a pernicious structure. That was a very significant fact; in Paris, London, and Berlin the condition of the great intestine was then forcing itself on the attention of thoughtful medical men. To anatomists who knew that the great intestine was an intrinsic part of every air-breathing vertebrate, that it reached a high degree of development and specialisation in every mammal that included a vegetable element in its diet, that in all the animals immediately allied to man—his contemporaries and his very ancient predecessors—the great intestine was shaped, arranged, and developed as in him,—the conclusion that the human great bowel was a useless structure seemed a flat contradiction of every law applicable to the animal body. It was hard to believe that a great structure which had served that long chain of ancestors, carrying man's lineage through the secondary and tertiary periods of the earth's formation, and assisting man to become the dominant and universal species of the world, should suddenly fail him. They seemed driven to the conclusion that it was not the organisation of the great intestine that had failed, but that our modern dietary set a task for which it was not adapted. In civilized modern communities the great bowel had to manipulate a dietary such as was never before prescribed to it at any stage of its long evolutionary history. If an engine ran unsatisfactorily it might not be from a fault in its mechanism but from a defect in the fuel. Those who

[1] THE LANCET, March 15th (p. 754) and April 19th (p. 1093), 1913.

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LATE ASSISTANT MEDICAL OFFICER TO THE BUCKS COUNTY ASYLUM.

THE following case of death from acute pulmonary œdema is of some interest on account of the existence of a peculiar delusion of persecution which may have been associated with a previous pulmonary attack. My acknowledgments are due to Dr. H. Kerr, the medical superintendent of the Bucks County Asylum, for permission to publish the case.

The patient, a female, 30 years of age on admission, was admitted to the Bucks County Asylum on July 16th, 1895. She was pregnant and gave birth to a child four days after admission. Her mental state at that time was one of depression, with anxiety and fears of persons entering her room. She was thin and rather anæmic, and her heart sounds were described as weak and muffled, but it is stated that there was no cardiac murmur. Her health improved and she became fat, and except for some slight degree of anæmia appears to have shown no symptoms of physical disease until her death. Her mind did not recover, and she became chronically maniacal, with frequently recurring exacerbations and remissions. About six months before her death she complained that another patient had put soap into her mouth whilst she was asleep in bed, and that it had nearly choked her. This was not regarded at the time as having any special significance. Her general health continued good, and she worked steadily at the ordinary housework of an asylum ward.

On April 1st, 1911, the patient was found dead in bed at 10.15 P.M. by the night nurse. When I saw her she was lying on her back, her nose and lips were covered with white froth, and her lips were livid. According to the accounts of fairly reliable patients in the same dormitory, she got out of bed shortly before 10 o'clock, and was seized with a severe attack of coughing. She returned to bed and the coughing continued for some minutes, and she complained of pain in the chest. She was quiet afterwards, and was thought to be better again.

At the post-mortem examination the heart was found to be hypertrophied, and weighed 12 oz. There was marked stenosis of the mitral orifice; the mitral valve was thickened and there were small vegetations on the cusps. The aortic valve cusps also showed small vegetations. Both lungs were distended and filled with frothy exudation.

The case appears to have been one of acute pulmonary œdema, and the delusion that soap had on one occasion been put into her mouth during sleep may have arisen from a previous attack.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SPECIAL MEETING OF FELLOWS.

Continued Discussion on Alimentary Toxæmia.[1]

A MEETING of the Fellows of the society was held on April 21st, Sir FRANCIS H. CHAMPNEYS, the President, being in the chair.

Mr. P. LOCKHART MUMMERY, in reopening the discussion, said that little was known as to the true pathology of alimentary toxæmia. He disagreed with Mr. Lane as regards the so-called adhesions found in cases of alimentary toxæmia, and pointed out that in many instances they were not real adhesions, but abnormal folds of peritoneum. He attributed the cause of this condition to the neglect of constipation in early life. He insisted upon the importance of a careful diagnosis to ascertain the cause of the stasis before attempting to cure the condition by operation, and deprecated the practice of performing a uniform operation in all cases. Mr. Mummery said he believed that many of the crippling cases of chronic arthritis owed their origin to alimentary toxæmia, and that the disease might be arrested in its early stage by proper treatment directed to cure the condition of the colon. As regards the choice of operation Mr. Mummery was in favour of appendicostomy when possible, and thought the more serious operation of ileo-sigmoidostomy should be reserved for those cases in which appendicostomy had failed to give relief. He attached considerable importance to careful after-treatment in these cases, and pointed out that acetonuria more frequently occurs after operation in cases of alimentary toxæmia than after operations in which this condition is not present.

Professor ARTHUR KEITH said that he came forward that evening as a representative of that humble and somewhat neglected group of men whose business it was to impart a sound knowledge of the structure of the human body to medical students and medical practitioners. It seemed to him that the present generation of anatomists had appeared at an unfortunate time when medical men in general, and surgeons in particular, had lost faith in human and comparative anatomy as a source of help in enabling them to solve the practical problems of applied medicine. He wanted, therefore, to place before the Fellows the anatomist's point of view—so far as it bore on the present discussion. During the last 20 years our teaching and our research had been greatly influenced by the various movements which had cumulated in the present discussion. In reality this discussion centred round the nature and function of the great intestine. He would deal first with the formation of peritoneal adhesions—a matter which had received and which was receiving a great deal of attention from anatomists. Anatomists were at once brought face to face with one of the most striking of all the developmental changes seen during the growth of the fœtus. There could be no doubt that man came of a stock in which the mesentery and bowel were originally arranged in a primitive and simple manner, for in the second month of development the human intestine and its mesentery had the lineal arrangement seen in the lowest mammals. Then during the third, fourth, and fifth months of fœtal life a profuse adhesive process set in—a regulated embryological peritonitis—which led to the cohesion of mesenteries and viscera to the posterior wall of the abdomen—an adaption as they supposed to the upright posture, for it was only in those upright forms that we found these adhesive changes take place. After the fifth month the process of adhesion proceeded more slowly, and was completed about the time a child learnt to walk. The extent of the process was extremely variable. How variable it was one could readily see by consulting recent papers by Dr. Douglas Reid, the monograph by Dr. Henry M. W. Gray and Dr. W. Anderson, or the fine treatise on the appendix by Kelly and Hurdon. In about one newly born child out of every ten the process of adhesion would be found to have bound the mesentery of the lower part of the ileum to the pelvic fossa, giving the condition which was associated with ileal kinking. The extent to which adhesions were produced between the cæcum and ascending colon varied, but a condition which gave rise to a "Jacksonian membrane" was not rare; wide adhesions at the region of the hepatic and splenic flexures were always present—all these adhesions were parts of a normal embryological and useful process. They recognised, however, that all peritoneal adhesions in the ileo-cæcal region were not embryological and normal; one saw occasionally in adult bodies a degree of adhesion never seen in the child at birth, and anatomists recognised that some of the adhesions were the result of pathological processes. The majority of the adhesions, often regarded as pathological in nature, were in reality mere expressions of a normal and healthy fœtal process. The question of ptosis or dropping of the viscera was also one which had interested anatomists. They had recognised the frequency of this condition before they were aware that Glénard had scheduled visceroptosis as a distinct pathological entity, and long before they succeeded in convincing their colleagues, the clinicians, of the frequency and the importance of the condition. It was a fortunate circumstance that at that time the discovery of Roentgen placed a new means of inquiry in the hands of anatomists. A study of the living diaphragm convinced them that the essential feature of the abdominal viscera was not their fixity but their mobility; they were so attached that they could move freely with the respiratory tide. It became apparent to all of them that mesenteries and visceral ligaments only came into action when the limits of normal movement were reached; the musculature of the abdominal wall was the essential mechanism for supporting the viscera. The pathology of visceroptosis was, therefore, to be sought in a better understanding of the nerve relationships which existed between the viscera and their supporting walls. The researches of Sherrington, Hill, Mackenzie, Elliott, and many others showed them how closely the tone and contraction of the abdominal parietes were related to the posture of the body and to the condition of the viscera. They had not yet solved the problem of how the tone and contraction of the musculature of the body wall and of the alimentary canal were coördinated, but they had sufficient evidence to lead them to suspect they were regulated by a common nerve mechanism. It was probable that this mechanism might be acted on and deranged by pathological products generated in the intestine, and that visceroptosis was one of the manifestations of alimentary toxæmia. He now came to the essential question round which the present discussion had revolved: What is the functional value of the human great intestine? At the beginning of the present century a sharp divergence of opinion set in. In the years 1902 and 1903 three men—an anatomist, Barclay Smith, a bacteriologist, Metchnikoff, and a surgeon, Arbuthnot Lane—came independently and by a different train of reasoning to the same conclusion—so far as man was concerned the great intestine was not only a useless but a pernicious structure. That was a very significant fact; in Paris, London, and Berlin the condition of the great intestine was then forcing itself on the attention of thoughtful medical men. To anatomists who knew that the great intestine was an intrinsic part of every air-breathing vertebrate, that it reached a high degree of development and specialisation in every mammal that included a vegetable element in its diet, that in all the animals immediately allied to man—his contemporaries and his very ancient predecessors—the great intestine was shaped, arranged, and developed as in him,—the conclusion that the human great bowel was a useless structure seemed a flat contradiction of every law applicable to the animal body. It was hard to believe that a great structure which had served that long chain of ancestors, carrying man's lineage through the secondary and tertiary periods of the earth's formation, and assisting man to become the dominant and universal species of the world, should suddenly fail him. They seemed driven to the conclusion that it was not the organisation of the great intestine that had failed, but that our modern dietary set a task for which it was not adapted. In civilized modern communities the great bowel had to manipulate a dietary such as was never before prescribed to it at any stage of its long evolutionary history. If an engine ran unsatisfactorily it might not be from a fault in its mechanism but from a defect in the fuel. Those who

[1] THE LANCET, March 15th (p. 754) and April 19th (p. 1093), 1913.

regarded the great bowel as a useless structure blamed the engine; for his part he stood by those who blamed the fuel. Let them look at the evidence on which the useless and pernicious nature of the great bowel was based. The great bowel could be excised and health maintained; that proved it was not an essential structure. If diseased, excision might lead to improved health; that proved no colon was better than a diseased one. What must be proved, however, before they regarded the colon as a useless structure was that a man without a colon was in a better state than the man with a healthy colon. It would be time enough to relegate the great bowel to the list of useless structures when that much was proved. This problem of the great bowel was really a child of our ignorance; we had only a vague knowledge of its rôle in the economy of the animal body. If we kept before us the history of progress in medicine it was not likely that anyone would presume, because he did not know the use of the colon, that it had no function and was a useless structure. Every year saw some structural part, formerly placed with the useless or vestigeal structures, removed from that list. Only a few years ago Pavlov and Starling introduced us to the elaborate mechanism which controlled the exit of the contents of the stomach to the duodenum; it was certainly their investigations which led him to look for a similar mechanism at the junction of the ileum and colon. Elliott demonstrated that such a mechanism existed at the time he was carrying out research on the movements of the great intestine. He (Professor Keith) felt certain that Dr. Hertz was right when he attributed the effects, which Mr. Arbuthnot Lane ascribed as the result of a kinking at the terminal part of the ileum, to a derangement of the ileo-cæcal sphincteric mechanism. Every step forwards in our knowledge cut the ground from under those who took a purely mechanical view of the action of the great intestine. Evidence he had accumulated lately justified him in supposing that the mechanism for regulating the passage of food from the ileum to the cæcum of man was more elaborate than we supposed. Besides the muscular fibres which were situated directly at the ileo-cæcal orifice, and which evidently were designed to secure that orifice against reflux from the cæcum, there was also a mechanism for regulating, as Dr. Hertz suggested, the passage of the contents of the ileum to the cæcum. The musculature of the terminal part of the ileum for an extent of nearly 4 inches (roughly 10 cm.) above the ileo-cæcum junction was endowed with a special tonic function; it served as a sphincter for the terminal part of the ileum. He would also like to take that opportunity of emphasising the need of having every diseased colon removed by operation systematically and minutely investigated. His friend Professor J. W. Smith, of Manchester, had recently given him an opportunity of examining a very complete specimen removed by operation. There was mucous colitis throughout the whole of that part of the great intestine which was excised with abundance of intestinal sand scattered along the lumen. A typical ileum kink was present 4 inches above the ileo-cæcal orifice. The musculature of that part of the ileum was strongly contracted. The terminal 4 inches of ileum was bound down to the pelvic fossa by a peritoneal adhesion exactly similar to that seen in a proportion of normal newly born children. There was nothing in the nature of the iliac adhesion to suggest that it differed in origin and nature from the natural band seen so often in children.

Mr. GEORGE ROWELL said that his remarks would be confined to the condition which Mr. Lane had named "chronic intestinal stasis." Among the many subjects included in this discussion on alimentary toxæmia it would seem to be of prime importance to examine and ascertain how far facts supported Mr. Lane's revolutionary proposition. The regard in which the theory was held was changing rapidly, and at the present time the position was of much interest, for every degree of agreement with Mr. Lane was now to be found in the profession. Speaking generally, it would appear that many of those who had given the most attention to the conditions which were actually to be found inside the abdomen were the most in accord with Mr. Lane's views. It was because he had seen a large proportion of Mr. Lane's work on cases of chronic intestinal stasis from its beginning that he ventured to take part in the debate. No one who had seen Dr. C. Mayo's photographs of the ileal kink could doubt the existence of the characteristic band. He had seen this demonstrated to the onlookers at operations scores of times in the most unmistakable manner. He had also seen the fastened-up appendix, crossing and obstructing the end of the ileum, similarly demonstrated on numerous occasions. Whether the new structures causing these two forms of abnormality were inflammatory or not in origin did not matter with reference to the results produced. In both cases it was easy to demonstrate that there was a fixed point, and it was obvious on examination that the sagging of the bowel in the vertical position of the trunk must in each case cause some obstruction. One frequently saw long coils of intestine drawn up out of the pelvis in these operations, of which the only fixed attachment was the point alluded to. What the amount of obstruction actually was would also seem to be not necessarily a matter of moment, the important point being that cases exhibiting these structures displayed in a definite manner the symptoms described by Mr. Lane as those of chronic intestinal stasis. Again, the exact nature of the particular poison in any case was also a minor point so far as diagnosis and treatment were concerned, the weighty consideration here being that when the obstruction was relieved by operation the symptoms disappeared. He had seen the bands which had developed in connexion with the duodenum and the sigmoid demonstrated many times in the clearest possible manner, and he had frequently seen the duodenum dilated, sometimes very dilated, in these cases. In many it had actually presented through the abdominal wound. In operations undertaken for duodenal ulcer he had several times seen ileal obstruction examined for and found. The adhesions described at the splenic and hepatic flexures and those supporting the stomach were also quite familiar to onlookers at Mr. Lane's operations. Most of the operations for the relief of chronic intestinal stasis at which he had been present during the last few years had been previously examined by the X rays and reported upon by Dr. A. C. Jordan. It was nearly always the case that the report had predicted accurately the condition that had been found. Indeed, one of the most striking things that he knew in surgery was the precision with which, when assisted by the X rays, the exact causation and degree of stasis could be diagnosed before operation. In his experience the X rays sometimes showed less than was found at operation; a kink was occasionally missed. Certainly he had never seen a dilated duodenum diagnosed by the use of the X rays that could not be demonstrated at the operation. As showing the importance of the ileal band was a group of cases of which he had seen many examples—patients in whom pain had persisted after the appendix had been removed. In these cases he had seen the ileal band divided and immediate relief result, although one understood that the relief might not be permanent without a short-circuiting. The general effects of chronic intestinal stasis were stated to include the impairment of every tissue. It was not easy to see the connexion; if it were, no doubt this would have been discovered long ago. Take, for example, thyroid enlargement. If it were true that the connexion existed it followed that the relief of stasis ought to diminish the size of the thyroid. Besides the interesting case given in Mr. Lane's introduction, he had on two occasions seen an enlarged thyroid diminish very rapidly after short-circuiting. In Dr. Hale White's opening paper he adduced a case of exophthalmic goitre which disappeared during an attack of typhoid. The rest in bed, the milk diet, and the diarrhœa during the illness obviously must have kept the patient without stasis for some weeks, so that instead of providing an argument against the theory that exophthalmic goitre was associated with chronic intestinal stasis, this case would seem to be in perfect accord with that belief. The cure of duodenal ulcer by rest in bed had a similar significance. With regard to cancer he had often seen the symptoms of long-standing chronic intestinal stasis demonstrated in cases of cancer of the breast, and repeatedly in cases of cancer of the bowel, disease of the gall-bladder and of the pancreas the ileal kink had been clearly shown. Pyorrhœa was a condition held by Mr. Lane to be a result of chronic intestinal stasis, though he (Mr. Rowell) did not suppose that he would deny the possibility of a direct infection, as, for example, from pet dogs. As he saw cases of pyorrhœa almost daily, he would like to remark that he had seen complete cures by vaccines as well as by scrupulous local treatment, and that he knew of many cases in which the cure had been much aided by paraffin internally. Two of his dental friends of large experience in this disease made an

almost routine practice of prescribing paraffin for these cases, and one of them had told him that he did not know whether the paraffin or the local treatment had the largest share in effecting a rapid cure. Certainly his experience was that it was quite unnecessary to remove all the affected teeth in pyorrhœa. A large number of facts were being brought to light in various branches of medical knowledge which, when examined, were found to fit in with, and to lend support to, Mr. Lane's theories. The question of infant feeding might be alluded to as an example. In 1901 Dr. Eric Pritchard came to the conclusion that disease in infants, and much in after life, was largely due to overfeeding during the first year. This, he held, caused overdevelopment in the length of the bowel, such overgrowth often extending to many feet, for which there was no adequate room, and therefore peristalsis was impeded, and delay in the passage of the contents of the intestine resulted. For the prevention and treatment of this condition he had given paraffin very largely, and, agreeing with Mr. Lane, was convinced that the constant exhibition of paraffin had a marked effect in both the prevention and the cure of tuberculosis. The fact had been alluded to that he had repeatedly seen the disappearance of the symptoms of stasis, more or less rapidly according to the degree of disease present, after the operation of short-circuiting, with and without colectomy. In many of the worst cases the results after some years were even more remarkable. With reference to the points of interest in connexion with anæsthesia in sufferers from chronic intestinal stasis he had already given the results of his experience, and as this matter was of small general interest he would only call attention to the fact that by the use of the method that had been described the risk of the anæsthetic was practically a negligible quantity, and shock and after-sickness were commonly absent. He had never seen acetonuria, probably because he never used chloroform in these cases. To conclude, he would submit, for what it was worth, with great respect to those whose work lay in the diagnosis and treatment of disease, that the facts one had been able to observe, so far as they had gone, completely supported Mr. Lane's views.

Dr. W. LANGDON BROWN regarded alimentary toxæmia as due to either (1) abnormal intestinal flora or (2) normal intestinal flora acquiring an abnormal habitat. *Pari passu* with the introduction of the normal bacteria into the intestinal tract after birth the body acquired means of defence against them. An infant in whom normal bacteria were planted too early might be unable to resist them, and he instanced cases of septicæmia due to B. coli and B. aerogenes capsulatus thus induced. A similar diminution in resistance was seen in old people in whom B. coli septicæmia might occur without local lesions. Proteins putrefied and carbohydrates fermented; and to a certain extent these processes were antagonistic. It was the aromatic groups and the sulphur groups in the protein molecule which were specially prone to putrefaction. The ordinary products of putrefaction were rendered inert by conjugation with glycuronic acid or sulphates. Garrod had prognosticated the approach of carboluria by finding the proportion of ethereal sulphates in the urine rising, which was a more reliable sign of impending toxæmia from putrefactive bodies than the presence of indican, which also had the disadvantage of being unstable and disappearing from the urine on standing. The comparative failure of the phenol compounds as intestinal antiseptics was probably due to their depriving the body of the power of rendering putrefactive bodies harmless by combining with the sulphates. On the other hand, the value of sulphates in the treatment of certain intestinal conditions was not limited to their aperient action, as in this way they had an antitoxic action also. To illustrate the point that abnormal intestinal bacteria were responsible for toxæmia in many cases he dealt with microbic cyanosis, paroxysmal hæmatoporphyrinuria, and the formation of pressor diamines. In each of these there was evidence of the action of some special organism, and he thought that renewed study of these conditions, where the chemical changes were relatively simple, would probably throw light on the vaguer states often referred without positive evidence to alimentary toxæmia. The reaction of the body against these simple poisons was quite different to that adopted against foreign proteins and bacterial toxins. No antibodies were developed, but simple processes of oxidation, dehydration, and combination with glycuronic acid, bile salts, sulphates, and possibly glycogen occurred. The fact that the poisons in so many of these cases were not antigens considerably limited the application of vaccine therapy in alimentary toxæmia. He called attention to oral sepsis as a factor in producing atonic dilatation of the stomach, and adduced evidence against the recent view that the amount of acid in the gastric juice determined whether or no oral sepsis would set up rheumatoid arthritis.

Mr. EDRED M. CORNER said that the history of the progress of the infection of the alimentary canal with micro-organisms was very important, and must be thoroughly understood by those who desired to appreciate the practical bearings of the subject of alimentary toxæmia. Briefly, the life-history of an hypothetical individual with regard to alimentary toxæmia might be set forth as follows. As with the great majority of others, whilst the fœtus was in utero the contents of the alimentary canal were sterile and the physiological processes of digestion were inactive, so there was no chemical change taking place within the alimentary canal, toxins could not be produced, and any alimentary toxæmia was impossible. But with birth, or soon after, organisms were introduced into the alimentary canal and a life-long intestinal education was begun. Being unused to the products of the action of micro-organisms the baby's tissues suffered. This was seen in the very frequent gastro-intestinal irritation of the newborn, breast-fed or artificially fed; also, perhaps, in the secretion of fluid by the peritoneum in the abdomen, seen when a patent processus vaginalis was present as a hydrocele. Should the baby's resistances overcome its alimentary toxæmia all would be well. But should the actions of the toxins prevail the child would get rickets, a result of the action of what might be called alimentary toxins on the growing tissues. Of course, alimentary toxins, or toxins absorbed from the alimentary tract, were not the only ones that could produce such deleterious action on growing tissues. Others might be absorbed from the tonsillar region. Still our profession regarded the alimentary toxins as the most important by far in the production of rickets. Rickets was not the only result of severe alimentary toxæmia in childhood. Many other diseases might be mentioned, such as wasting, thrombosis, osteo-arthritis, and so forth. Indeed, by lowering the resistance of the tissues of the child alimentary toxæmia might be said to render the entrance of organisms to the body more easy. Thus it would dispose to tuberculosis of the mesenteric glands, and to an infinite number of diseases. From this life-long intestinal education we learnt to endure alimentary toxæmia until a certain amount of alimentary toxæmia was physiological to us and necessary to our well-being; our powers of resistance to such toxins increased and increased until with mature years and equanimity we could overcome such a feast as the "City banquet." As life progressed the tissues of the alimentary tract were affected directly and the rest of the body indirectly. The results of the organisms in the alimentary tract were known, and formed different chapters, so to speak, in our book of intestinal sepsis. Appendicitis was at once the most frequent and dangerous result of intestinal sepsis. Colitis and its ulcerative form were others. Later in life there were gastric and duodenal ulcers. All the affections mentioned hitherto affected primarily the mucous membrane of the bowel. But the sepsis affected more than the mucous membrane. The action of the muscular coats might be interfered with, producing delay in the passage of the intestinal contents—constipation, or, as it had been called, "intestinal stasis." But in addition to the inner and middle coats of the bowel the peritoneal covering membrane might be irritated—in the young leading to the formation of a hydrocele, and in the older to the formation of adhesions. The results and treatment of the adhesions, and the kinks caused by them, had already been gone into by Mr. Arbuthnot Lane. It must suffice that of his (Mr. Corner's) own experience he could tell them that some patients were vastly improved by such operations as short-circuiting or colectomy, with and without appendicostomy, others were neither better nor worse, whilst a small number were even made worse by any attempt at operation. In the excitement and heat of so large a discussion as this, points of practical issue were apt to be

overlooked or buried in accumulation of theories and scientific observations. That some patients were vastly improved by operation was, he knew, beyond doubt, and he thought that improvement could not have been attained by any other means. Therefore he would strongly urge that for our future progress data be suggested by means of which we could differentiate those who would be improved by operation from those who would nor be benefited. This was very important from both the patient's and the surgeon's point of view. Surgeons owed many of their failures and inabilities to improve patients suffering from alimentary toxæmia because so much time had been lost before it was decided to resort to operative treatment. This brought him to a further point which he would strongly insist upon. Alimentary toxæmia was a progressive disease, or, perhaps better, the results of alimentary toxæmia were progressive; so that if the consideration of operative treatment was delayed, more and older changes (adhesions, mesenteries, &c.) would be encountered, and the surgeon would have still less chance of being able to benefit the patient. His inability to do so was not his, the surgeon's fault. It was the unfortunate result of delay; perhaps unavoidable, perhaps avoidable. And it must never be forgotten that the intestinal tract was only one of many systems of excretion whose faults might give rise to auto-intoxication. In conclusion, he would insist that the terms alimentary stasis and alimentary toxæmia were not synonymous. People might enjoy well-being, and perhaps health, while suffering from intestinal stasis, *if the intestinal contents dried and the micro-organisms consequently died*. But where the intestinal contents were *moist and organisms were abundant*, fermentation must occur, and alimentary toxæmia became sufficiently marked to require treatment. A course of waters and purgatives might accomplish the result required, provided no kinks or other variety of intestinal obstruction was present. Thus when alimentary toxæmia was recognised clinically, he would suggest that treatment by means of diet and purgation should be begun. While it was in progress an X ray examination should be made of the progress of the intestinal contents along the alimentary tract. If any obstruction existed, the surgeon must obviate it. But his work "merely made the paths straight" and afterwards treatment by diet and medicines must be continued.

Mr. PETER DANIEL said that he would like to state quite clearly at the onset what his views on intestinal toxæmia were and then to discuss the reasons why he held those views. They were: 1. That gastro-intestinal toxæmia was one of the commonest everyday causes of symptoms of diseases, if not the commonest. 2. That it was due to infection of the gastro-intestinal mucosa. 3. That in adult life such infection originated almost invariably from some suppurating septic focus in the mouth and nasopharynx or the nose and its accessory sinuses. 4. That it might be extremely slight in degree and manifestation, or intense and fatal. 5. That it was the common source of disease of the liver and gall-bladder and the pancreas; that gastric and duodenal ulcers and many other ulcerative processes were terminal phases of the infection. That appendicitis was but part of the infective process progressed to such a degree as to be of sufficient moment to merit special treatment. 6. That peritoneal infection leading to adhesions, thickenings, bands, and all their consequences, was the inevitable result of chronic infection of the mucosa. 7. That as a result of the infection the function of the mucosa and the chemical processes of digestion were perverted and interfered with. Also, that the musculature of the organs was always detrimentally affected, leading to weakness of action, so that finally the organs did not properly empty themselves nor did they propel their contents at a normal rate. 8. That visceroptosis was an exceedingly common outcome of such prolonged infection, from influences already indicated, and thus a vicious circle was set up. 9. That the sphincters did not function normally when the mucosa lining them was inflamed; the exact reaction generally depending upon the degree of inflammation. 10. That evolutionary bands were always secondary to visceroptosis and, like the latter, were due to chronic infection of the mucosa. 11. That ileal stasis was not due to bands and such mechanical agencies in the main, although such might aggravate the stasis in a limited number of cases, but that the stasis was always an evidence of the presence of chronic infection of the bowel and was due to it. The stasis disappeared when the infection was cured, although the bands might remain. That many cases of stasis were apparent and not real—i.e., the ileum contained a bismuth meal unduly long because the stomach (the reservoir which supplied the ileum with its bismuth meal) was unable to empty itself at the normal rate. Thus there was a constant dribble of bismuth meal coming along into the ileum, and as long as this dribble persisted so long would the ileum show a shadow. 12. That in considering ileal stasis insufficient attention was devoted to the altered physiological processes as a cause of delay. 13. He did not believe that "food toxins" played a great part in the symptomatology of intestinal toxæmia, because if one cured the septic lesion of the mucosa without in any way altering the food of the patient one cured invariably the symptoms of toxæmia. They had also been told on good authority that the food toxins were not poisonous when taken by a healthy person by the mouth, and experimental research had shown that they were not absorbed when manufactured *in situ* in the bowel as long as the intestinal mucosa was undamaged. Under all counts, therefore, before food toxins could take part in producing toxæmia the mucosa must be damaged already. It was the bacteria swallowed from the septic focus in the upper digestive tract which damaged the mucosa. 14. What he believed to be the most potent toxin in the process of intestinal toxæmia was the toxin evolved by the bacteria themselves, especially the cocci which were found in such numbers in these septic cases in the mucus adhering to the mucosa and in the epithelial layers of the membrane. In the examples given by previous speakers of food poisons he would indicate that the underlying reason why the particular patients suffered poisoning was because they were in a septic state. The literature teemed with instances of Henoch's purpura being associated with sepsis in the gastro-intestinal tract. Scurvy in particular he had no hesitation in ascribing to oral and gastro-intestinal sepsis. Stasis was quite unnecessary for toxæmic absorption; a bladder acutely inflamed ejected urine much more frequently than normal, yet the patient had fever and other symptoms of toxic absorption.

Mr. C. H. FAGGE intervened in support of the view for so many years advanced by Mr. Arbuthnot Lane, that in many cases of intestinal toxæmia mechanical factors, in the shape of adhesions, bands, a false mesentery, produce kinks with intestinal stasis as their result, and that the operative treatment of these kinks is of the first importance.

Mr. H. W. CARSON wished to limit his remarks to that form of intestinal toxæmia which resulted from intestinal stasis, and referred briefly to two conditions—viz., parenchymatous goitre and the mastitis of young unmarried women, the cure of which, he thought, depended upon the cure of intestinal toxæmia. He considered that intestinal toxæmia resulted from excessive bacterial action and diminished elimination of toxins in the intestine, and that this was dependent on stasis of the intestinal contents. He believed that constipation was the original cause, and that as a result the cæcum, weighted down by retained fæcal matter, tended, in the erect position, to prolapse, and stasis also occurred in the ileum as a result of backward pressure. To overcome the tendency to prolapse bands formed in certain definite positions—between the parietal peritoneum and the ascending colon, the first part of the sigmoid and the terminal part of the ileum. These bands were not inflammatory, but were at first protective in their action, though later they interfered with peristalsis and even caused definite organic obstruction. From the point of view of treatment the important factor was the preliminary stasis in the cæcum and ascending colon. Medicinal treatment should be tried at first, but if ptosis was marked, and especially if adhesions were present, it would probably be ineffectual. He considered that the presence of adhesions could be demonstrated by an X ray examination after a bismuth meal and by the character of the pain. Operation was justifiable if thorough medical treatment had failed to give any, or only temporary, relief, and also in cases of adhesions. The choice of operation lay between dividing adhesions and short-circuiting the large intestine by implanting the proximal end of the divided ileum into the pelvic colon. If the first course was adopted the cæcum should be anchored by sutures into the right iliac fossa. Operation must be followed by six months' medical treatment.

Mr. KENNETH W. GOADBY said that much stress had been laid upon "swallowing pus," as if this fluid in itself was the actual cause of intestinal disturbance. It appeared more reasonable to regard the local absorption and infection through the actual site of inflammation as the chief means of invasion. Particularly must this obtain in pyorrhœa alveolaris, where the primary effect was lowering of general body resistance, allowing a secondary invasion of the mucosa of the alimentary tract, thereby producing the curious complex of symptoms frequently associated with the condition. He summarised a series of 150 consecutive and unselected cases of suppuration of the alveolar process of the jaws. Thirty-six—i.e., 24 per cent.—had no general symptoms, notwithstanding the swallowing of pus for at least two years; 64, or 42 per cent., had definite symptoms of gastro-intestinal affections. Localised points of infection, not generalised suppuration, were associated with the largest number of cases with intestinal symptoms. Again, 56 per cent. of all the cases had rheumatic symptoms. In none of the cases was gastritis an acute symptom, and no history of gastric or duodenal ulceration was obtained in any case. Anæmia of secondary or toxic type was a feature in 66 cases. Affections of the portals of the alimentary canal produced secondary changes in the whole organism, not so much by the passage of their products into the stomach as by the entrance of bacteria and their toxins into the blood stream in the affected areas, while conversely processes of the lower parts of the alimentary canal or blood might affect the oral tissues. In the treatment of pyorrhœa alveolaris both local and general measures were essential. General and local resistance should be increased by means of autogenous vaccines, and followed by surgical treatment upon ordinary lines. He entirely dissented from the proposition that the only remedy for pyorrhœa was extraction.

Mr. E. C. HUGHES drew attention to the peritoneal bands which are frequently met with in the abdominal cavity, without any sign of inflammation of the contained viscera. He considered them to be developed to prevent the downward displacement of the intestines. Lane's ileal kink and band showed three chief characteristics: (1) it was 3 to 4 inches away from the termination of the ileum; (2) the band was attached to the antimesenteric border rotating it; and (3) the band was on the under surface only of the mesentery. Could an inflammation of the appendix produce the same result in 100 per cent. of cases? The ileal kink was certainly evolutionary in origin. In the same way the peritoneal bands attaching the ascending colon and cæcum to the posterior abdominal wall were evolutionary. These bands were very common. The appendix was frequently affected by these bands, one or other of them getting attached to it at some part of its length, so that its mobility was impaired. But the more common position of the appendix was for it to be attached to the under surface of the mesentery of the small intestine, either entirely or almost entirely with the terminal inch free. In this condition the appendix was acting as a suspending ligament of the cæcum. These adhesions were responsible for nearly all cases of acute and chronic appendicitis. The adhesions impaired the mobility of the appendix, so that it was unable to discharge its secretions efficiently; the secretions accumulated and formed the fæcal concretion. Conditions were favourable to the development of bacteria in the stagnating contents. An acute inflammation of the appendix, beginning in the interior, might arise at any moment, the virulence of the affection depending on the quality and quantity of the bacteria and the resistance of the individual. The appendix, which was partially adherent and had its termination free, was liable to kinking or torsion at the junction of the fixed and movable parts; a complete and lasting kinking would be followed by gangrene of the movable part; a temporary kinking on being relieved would be followed by intense congestion and finally recovery. The symptoms and results of the former type would be far more severe than those of the latter, where no opportunity would have been afforded for the growth of bacteria. It was on account of the impossibility of knowing which type of appendix was at fault that the appendix must be removed at once in an attack of acute appendicitis. Chronic appendicitis was due to the same causes, but the changes in the organ were far less marked. Removal of the appendix cured the condition. In appendicular dyspepsia, where in addition to local signs over the right iliac fossa there were the symptoms of duodenal ulceration, removal of the appendix frequently cured the condition. But there was a large number of cases where the removal was followed by no benefit. It was probable that those cases were cured, in the absence of an ileal kink, where the appendix was acting as the suspensory ligament of the cæcum, and as it did so through its attachment to the mesentery it obstructed the ileum, behind which it was passing, and caused a delay in the discharge of the ileal contents into the cæcum. Anyone who had seen much of Mr. Lane's operative work must be convinced that his explanation of intestinal stasis was correct, but it was not yet clear what were the indications for operative treatment.

The debate will be resumed on Monday, April 28th, at 5 P.M.

SECTION OF LARYNGOLOGY.

Exhibition of Specimens and Cases.

A MEETING of this section was held on April 4th, Mr. HERBERT TILLEY, the President, being in the chair.

The PRESIDENT announced that a proposition to admit as members of the section clinical assistants who had served for one year at recognised clinics had been approved by the council, and would be presented at the general meeting.

The PRESIDENT showed: 1. A Shawl-pin which he had removed from one of the hyparterial branches of the bronchus of a woman aged 42. The pin point was directed towards the observer, and appeared only as a thread of mucus. Twice it slipped from the forceps, but was eventually drawn out with the bronchoscope. Morphia, atropine, and chloroform narcosis were employed, while the trachea and larynx were painted with 20 per cent. cocaine. 2. A T-shaped instrument with which the outer part of the tonsil is compressed and septic material expressed; the tonsil is rotated thereby so that the crypts are readily examined.

Mr. G. N. BIGGS showed: 1. An almost complete Cast of the Epithelial Lining of the Œsophagus, which was vomited three days after the patient had swallowed one ounce of chloroform. Rectal feeding was employed, and bismuth, lanoline and paroleine given every four hours by the mouth. Œsophagoscopy three months later gave no indication of contraction. 2. Specimen from a case of lympho-sarcoma in a child, aged 13, admitted with three weeks' history of enlarged glands in the neck and a swollen tonsil of dark maroon colour. The growth spread with appalling rapidity and became gangrenous. The child died from toxæmia 16 days after admission. The glands of the neck and mediastinum were extensively involved.

Mr. E. A. PETERS exhibited a case of Cyst of the Arytenoepiglottidean Fold which burst spontaneously with a rent in the upper surface. He stated that some of these cysts disappeared rapidly on puncture, while others required removal of a considerable part of the wall. In this case the cyst appeared to be reforming.—The PRESIDENT had experienced redistension with some cysts and had found it necessary to remove a considerable part of the wall; he considered that a multilocular character explained the history in some cases.—Dr. H. W. FITZGERALD POWELL recommended the opening of the cyst by the cautery and subsequent application of the lining.—Dr. WILLIAM HILL advised puncture of the cyst, and alluded to the removal of a cystic mass from this region.—Mr. E. B. WAGGETT would use suspension laryngoscopy and remove part of the cyst wall.—Mr. G. W. BADGEROW had noticed the frequent disappearance of these cysts on mere puncture.

Dr. J. DONELAN showed a case with a Cyst on the Epiglottis with symptoms suggestive of œsophageal stricture. The cyst was small and associated with a scarred condition resembling healed syphilis or lupus.—Dr. FITZGERALD POWELL contended that the symptoms must be due to a growth and not to the small cyst.

Dr. DONELAN again brought up his case of Post diphtheritic Adhesion of the Palate, as there was no evidence of syphilis in the case.—The PRESIDENT considered the possibility of diphtheria alone as the cause of the preceding ulceration as slight.—Mr. PETERS suggested the common association of diphtheria and scarlet fever as an explanation of the condition.—Dr. P. WATSON-WILLIAMS could not recall a case of such extreme post-diphtheritic ulceration in his experience.

Mr. E. D. D. DAVIS exhibited a healthy-looking man with Tuberculous Disease of the Epiglottis and tubercle bacilli in

the sputum. It was found impossible to remove the whole of the disease with punch forceps but with Killian's suspension laryngoscopy apparatus the epiglottis was readily trimmed with forceps and scissors.—The PRESIDENT alluded to the advantage of the suspension apparatus in such manipulations, as both hands were freed by the laryngoscopy apparatus.

Mr. W. G. HOWARTH brought the Tumour removed from the patient on view at the last meeting. The extensive dissection had been effected with the aid of Kuhn's per-oral intubation apparatus, which had obviated a tracheotomy. The extraordinary history revealed the sequence of a papilloma in January, a fibroma in March, and finally a round-celled sarcoma in September, all affecting the soft palate.—Dr. DAN MCKENZIE considered the case unique.

Mr. F. F. MUECKE exhibited a patient on whom tracheotomy was performed six years ago for Tertiary Obstruction of the Larynx, and who was still carrying a tracheotomy tube. There appeared to be a mass of granulations, though the patient could breathe through the larynx.

Mr. G. SECCOMBE HETT presented a man who was able to speak after removal of one cord, and the anterior part of the other cord, two and a half years ago for malignant disease. The result had been contributed to by exercises instituted by Mr. C. MacMahon.—The PRESIDENT considered the result an excellent one.

Dr. WILLIAM HILL'S case of cicatricial contraction of the lower part of the pharynx and paresis of the cords due to myopathic changes was discussed. Killian's dilation apparatus was employed. A small rubber tube was retained *in situ* and enabled the patient to swallow liquid food.

A discussion followed on the question of nasal feeding. Dr. HILL was in favour of feeding per os. It was suggested that the nasal route was unsatisfactory when the nasal passages were either irritable or diminished by vasomotor rhinitis or other obstructions.

SECTION OF OTOLOGY.

Functional and Simulated Affections of the Auditory Apparatus.

A MEETING of this section was held on April 18th, Dr. J. DUNDAS GRANT, the President, being in the chair.

Mr. T. MARK HOVELL introduced a discussion on Functional and Simulated Affections of the Auditory Apparatus. He thought a general consideration of this subject was opportune, as knowledge of it, especially in regard to treatment, seemed less clearly defined than that of most other aural manifestations. The term "functional deafness" was somewhat of a misnomer, because deafness meant the loss of a function—that of hearing. Many of the cases of simulated deafness arose in persons who wished for exemption from military service, and others among those who hoped to obtain pecuniary advantage from simulating disability due to accident or other cause. But there were also cases of apparent suppression of hearing power as the result of a violent emotional influence, and others in which deafness was simulated without any apparent object, or in which deafness was due to a temporary lack of nerve power. Among these latter must be included those who practised masturbation. In dealing with a case of suspected simulation care must be taken to avoid being prejudiced by statements emanating from people associated with the patient. Where there appeared to be no motive for loss of hearing the patient should be removed from uncongenial surroundings, and the examination should be directed to the discovery of any existing disease. In many cases of simulated deafness the onset was sudden, the voice modulations were not altered, and there was an absence of that quick movement of the eyes seen in most deaf persons, showing a desire to obtain the knowledge which they were precluded from receiving through the ordinary channel. Tests which could harm the patient should always be avoided, such as firing a pistol close to the ear. Where there was no apparent reason for the simulation, recovery was sometimes hastened by the medical attendant behaving as though he considered the case genuine. Sometimes, when making an examination and conversing with the friends in an ordinary tone, a casual request in the same tone to the patient to put out his tongue would throw him off his guard, and he would respond. Mr. Hovell concluded by describing in detail a number of tests employed.

The PRESIDENT demonstrated a case of the condition in an unmarried woman, aged 29, who suffered from cardiac trouble and was in somewhat feeble health, and who had had a syncopal seizure. For the detection of malingerers, especially those alleged to be suffering from caisson disease, he had found the use of the tuning-fork on the vertex very helpful. Some forms of function deafness seemed to be due to self-hypnosis, and such cases were sometimes considered to have been cured by some fanciful form of treatment.

Dr. W. MILLIGAN (Manchester) regarded the medico-legal aspect of these cases as very important, and many of the instances he had found it very difficult to unravel. One of the best tests he knew was that of the vestibular reactions, for these and the vertiginous symptoms were in hysteria "all up and down"; tests on separate occasions did not give the same responses.

Dr. H. MACNAUGHTON-JONES objected to the term "hysterical deafness," and said he regarded hysteria as a distinct entity, with characteristic nerve symptoms; it was apart from either neurasthenia or psychasthenia. Neurasthenia meant nerve fatigue, and in that fatigue the auditory apparatus participated. He did not think he had ever come across a case of true hysterical deafness.

Dr. DAN MCKENZIE alluded to the functional disability in old cases of organic deafness, under which the nerve centres, not being exposed to the usual stimuli, fell asleep, and this factor intensified the degree of the deafness.

The discussion was continued by Mr. HUGH E. JONES, Mr. E. B. WAGGETT, Mr. P. M. YEARSLEY, Dr. L. H. PEGLER, and Mr. G. J. JENKINS. Mr. HOVELL replied.

MEDICAL SOCIETY OF LONDON.

Exhibition of Clinical Cases and Pathological Specimens.

A MEETING of this society was held on April 14th, Sir W. WATSON CHEYNE, the President, being in the chair.

Dr. F. PARKES WEBER showed a specimen of Primary Tumour of Bone (Endothelioma?). It was obtained from a woman, aged 54 years, who was admitted into hospital on May 29th, 1912. In September, 1911, she had complained of pain in the shoulder and down her back, worse when driving. In January, 1912, she took to her bed and was treated for neuritis, and remained in bed until her admission to hospital. When in bed her chief pain was in the neck, shoulders, and back. The pain in the neck seemed to cause stiffness of the jaw. Latterly she had had excruciating pain and stiffness in both legs, but the arms had never been affected. She had had a slight cough. On admission the patient was very thin, but she had a bright colour. There was marked kyphosis of the lower cervical and upper dorsal regions of the spinal column, from the sixth cervical to the sixth dorsal vertebræ. There was pain on pressure over the kyphotic area, but not lower down. The muscular power was feeble; she could scarcely raise her legs from the bed. The knee-jerks were absent. On Oct. 9th, while the patient was being lifted on to the bed-pan, a fracture of the left femur in the region of the trochanter occurred. In November the urine was tested repeatedly for albumose (Bence-Jones protein), but none was found. All through the illness the temperature varied between 97° and 99° F. Death took place on Nov. 23rd, 1912. At the necropsy the liver was found to be crinkled and nodular; its cut surface showed numerous small yellow nodules. The bones were very friable; the ribs could be broken like rotten twigs, and the laminæ of the vertebræ could be easily cut through with scissors. Two specimens were sent to Dr. Weber. One was half of the neck and great trochanter of the left femur, the cancellous tissue and bone marrow of which were practically altogether replaced by new growth; the other was part of the right lobe of the liver, which was diffusely infiltrated with a pale-looking new growth. No swelling of lymphatic glands was observed at the necropsy, nor were tumours noted in any of the soft parts other than the liver. In the microscopical examination of the specimens Dr. Weber was indebted to Dr. J. C. G. Ledingham for great assistance. The liver was found to be infiltrated with miliary nodules of new growth, which histologically resembled the new growth in the bone, the latter being apparently primary. The tumour substance

consisted of medium-sized cells arranged in alveolar groups, with a generally rather scanty fibrous framework. The tendency to alveolar grouping was especially noticeable in the tumour from the bone. The nuclei of the tumour cells varied much in different parts of the growth. Some of them were round or oval in shape, large in proportion to the amount of cytoplasm, and more or less vesicular in appearance. Others were much smaller and irregular in shape, often eccentric in position, and staining deeply with hæmatoxylin. The cytoplasm showed no particular granules. No giant cells were seen. Some of the cells in their general appearance and staining resembled the clear cells with small deeply stained nuclei which constitute the most characteristic histological feature of the Gaucher type of splenomegaly, as described and illustrated by Ledingham in Allbutt and Rolleston's "System of Medicine" (second edition, vol. v., 1909, pp. 766–69). In the growth in the bone a few mitotic figures were observed.—Mr. E. H. SHAW said that in his opinion the growth was one of primary carcinoma of the liver and secondary metastasis in the bones.

Dr. WEBER also showed a case of Large Asymmetrical Cervical Ribs in an old man without arm symptoms. The patient was aged 80 years. When examining him some years ago (about 1908) Dr. Weber felt a hard lump on the left side of the neck just above the left shoulder. The patient was unaware of its existence, and the question arose, Was it a tumour of recent development, or had it been there a long time and escaped the patient's notice? A Roentgen ray examination was made in 1908 in Germany, and the following report was given: "The tumour above the left shoulder is not a bony lump, nor a cervical rib; it might be a neuroma, as pressing or moving it causes a pain all along the nervus brachialis." There could scarcely be a doubt that this X ray examination was one with the fluorescent screen only and without skiagraphy. On March 18th last, at Dr. Weber's request, Dr. N. S. Finzi took skiagrams of the patient's neck, and demonstrated the presence of large cervical ribs on both sides, but the right one dipped downwards more steeply than the left. This steep inclination downwards of the right one was the reason why only the left could be palpated as a distinct hard lump at the root of the neck. As the patient was fat and had a thick neck it was not surprising that an X ray examination without skiagraphy should fail to reveal the real nature of the condition. Dr. Finzi pointed out that the cervical ribs were jointed, the one on the left seeming to articulate with the first rib, whilst the one on the right probably articulated with the second rib. The case also illustrated the well-known fact that large cervical ribs often gave rise to no particular symptoms which directed attention to their presence.

Dr. J. L. BUNCH showed two cases of Hereditary Dupuytren's Contracture. The patients, father and son, were members of a family the male members of which were said to have been affected with Dupuytren's contracture for the past 300 years. In every case the disease was said to commence about the same age, to attain its maximum about the same age, and to affect precisely the same fingers of both hands. The first symptom noticed was a curvature of the little fingers. At about 25 years of age the little finger began to become flexed, and then the same contracture extended to the ring fingers. The female members of the family were not affected. The father was 50 years of age and showed well-marked contracture of the ring and little finger of both hands. The son was 26 years old and showed an earlier stage of the same process. A male grandchild was still too young to show any of these symptoms. The contracture attained its maximum about the age of 35 and then remained stationary.

Mr. E. H. SHAW showed: 1. Two specimens of Carcinoma of the Breast. The first was from a middle-aged woman. There was an irregular radiating growth, hard and white. The nipple was retracted deeply below the surface. Numerous hard glands had been found in the axilla and proved to contain growth. The second was from a woman about 50 years of age. It was ulcerating and fungating through the skin. The tumour had been noticed about 18 months. Several small soft glands in the axilla occurred, but were not affected by the growth. 2. A specimen of Carcinoma of the Gall-bladder, Cystic Duct, and Main Bile-ducts in the substance of the Liver. It was a columnar-celled growth, papillomatous for the most part. The liver was bile-stained. It was removed from a middle-aged woman who had been deeply jaundiced and wasted. 3. A specimen of Hydronephrosis. There was a very small ureter which left the upper part of the renal pelvis and bent sharply downwards, thus producing the obstruction which led to the condition. It was removed from a boy, aged 6 years, and was probably congenital in origin.

Dr. R. E. JEWESBURY showed a case of Acromegaly. The patient, a woman aged 36, came to London when she was 16, and at that time was said to be small for her age. She began to grow very rapidly when she was 19. Her hands and feet had become much enlarged and her face had altered, but she was not certain for how long these changes had been present. For the last three years she had been subject to pain in her back and had become round-shouldered. She had always felt well until her last confinement in July, 1912; since then she had complained of always feeling tired and was often drowsy, and also suffered a good deal from dyspnœa on exertion. She was free from headache, slept well, but often snored at night. Her hearing and sight were good. The appetite was normal and she was not unduly thirsty. Menstruation was regular. One sister was said to have large hands. The patient presented a typical acromegalic appearance. The face was markedly enlarged and elongated; the lower jaw was lengthened and the lower teeth projected beyond the upper; also the teeth were spaced. A plate was worn in the upper jaw, but the "bite" was bad. The skin of the face was coarse and hung in folds below the eyes; the lips were thick and the lower one protruded. The tongue was somewhat enlarged and fissured. The hands were much enlarged, especially in breadth; the fingers were increased in length as well as breadth. The feet were much enlarged, but not to the same extent as the hands. There were marked scoliosis and kyphosis in the lower cervical and upper dorsal region and the sternum was pushed forward, "Punchinello chest." The pulse was exceedingly irregular both in force and rhythm. The heart showed some hypertrophy of the left side. The discs were normal and there was no diminution of visual fields. The thyroid gland was very definitely and uniformly enlarged. X ray examination by Dr. W. Ironside Bruce showed very marked enlargement of the sella turcica and absorption of the posterior clinoid processes. The urine, normal in amount, contained no sugar.

Dr. JEWESBURY also showed a case of Pneumothorax. The patient, a boy aged 5 years, was admitted to the Victoria Hospital for Children for dyspnœa. Four months age he had measles and bronchitis followed by scarlet fever. Later his mother noticed that he "seemed very short of breath," and she brought him to the hospital. He had had no previous illness and the family history was good. On examination the boy was healthy looking and the general condition was good. At rest the breathing was easy, but he became very dyspnœic on slight exertion. The chest was asymmetrical, the right side bulged markedly all over and did not move with respiration. Vocal fremitus was absent over the right side. The percussion note was hyper-resonant all over the right chest, the liver dulness was diminished, and there was resonance between the left sternal edge and the cardiac dulness. On auscultation the breath sounds were much diminished and distant all over the right side. Coin sound obtained. Over the left lung the breath sounds were somewhat exaggerated; nothing else abnormal was detected. The heart was displaced very much to the left, the apex beat was in the fifth space, 1½ inches external to the nipple line, and the area of cardiac dulness was much diminished. The heart sounds were normal. The liver was pushed down. Radiograms of the chest by Dr. Stanley Melville were shown.

Mr. A. E. BARKER showed specimens of a Remnant Tumour of the Umbilicus. The original tumour was about the size of a small grape, and was seated in the umbilicus of a woman, where it had been noticed for some months. It was growing harder, and the skin over it was slightly discoloured. It was widely removed by Mr. Barker in September, 1908, between two curved incisions opening the abdomen. The peritoneum between the incisions was removed with the piece of skin containing the nodule. The usual method of closure was employed and absolute primary union resulted. A section showed the structure of the primary nodule. In the midst of fibrous tissue were seen

tubular structures divided transversely or obliquely. These were lined by subcolumnar epithelial cells like some tubular glands. In some parts the tubules were surrounded by looser submucous tissue. These structures were scattered through the nodule, always fairly defined and not infiltrating surrounding parts. The patient was not seen again until January last, when she reappeared, saying that she had for some time felt a small nodule of the size of a pea inside the left anterior iliac spine, which was occasionally slightly painful. On examination this was felt to lie in the subcutaneous fat, but to produce a little puckering of the skin when lightly pinched. It was removed shortly after by Dr. Frank Hinds, of Worthing, who was kind enough to send the specimen to Mr. Barker. A section showed the structure to be practically the same as that of the original nodule except that there was more fibrous tissue around the tubules. The relation of the secondary nodule to the primary seemed therefore to be established by the microscopic examination and the clinical history. That the original nodule was a neoplasm arising in a remnant of either the urachus or vitelline duct seemed beyond doubt. That it had recurred in the abdominal wall some 3 inches distant after free removal of the original growth of course aroused the suspicion of malignancy. Growths in or about the umbilicus derived from these fœtal remnants, though rare, were well known and had been recorded. The only other one which Mr. Barker had seen occurred about the same time. It was much larger and attached to the transverse colon which was excised with it. The patient made an excellent recovery. The tumour on section contained a white, firm mass of sebaceous material, about the size of a large grape, in dense fibrous tissue. The specimen after being exhibited on several occasions was lost at hospital, and no microscopic sections had been preserved. In the enormous surgical material of London it seemed probable that similar cases had been met with, and it was hoped that this short note of two cases might lead to their being mentioned.

Mr. L. E. C. NORBURY showed a case of Malformations of Head and Face. The patient, aged 3 months, exhibited (1) accessory auricles, (2) left macrostoma, (3) complete occlusion of the anterior fontanelle with an irregular bony formation in this region, (4) deformity of the nose, and (5) corneal opacity of the left eye. There was no history of other malformations in the family.

HUNTERIAN SOCIETY.

The Uses of Tuberculin.

A MEETING of this society was held on April 9th at St. Bartholomew's Hospital, Mr. A. H. TUBBY, the President, being in the chair.

Dr. NATHAN RAW (Liverpool) opened the resumed discussion on the Varieties of Tuberculin and their Value in Treatment.[1] He had treated 1036 patients suffering from the various forms of tuberculosis in the wards of Mill-road Infirmary and elsewhere, and his general impression was most favourable. The localised forms of tuberculosis responded more readily to tuberculin than cases of pulmonary tuberculosis with a general systemic infection, and many localised cases were completely cured by its use. He thought that all cases of pulmonary tuberculosis in the first and second stages should be treated with tuberculin in addition to ordinary sanatorium measures. He invariably treated his cases by cross-vaccination. In his experience, pulmonary tuberculosis, being most frequently an infection by human tubercle bacilli, was best treated by a tuberculin prepared from bovine bacilli; and *per contra* the localised forms of tuberculosis, being frequently due to bovine bacilli, showed better results with human tuberculin. Bovine tuberculin was less toxic and less irritating, and was not inclined to produce general reaction, so that even the most sensitive patients could tolerate injections of bovine tuberculin, where the other injections cause reactions and discomfort. As to dosage, immunity should be established very slowly and with moderate doses. His practice was to commence treatment with 1/10,000th mg. by weight of dried bacillary substance, slowly increasing the dose week by week to a maximum dose of 1/100th mg., this maximum dose being repeated as long as need be. He never exceeded it, and found the results most satisfactory. He emphasised the need of the greatest possible care and watchfulness, and held that the treatment should be employed only by a physician of experience and special knowledge of tuberculin. He considered it a remedy of the greatest value, especially in early cases and where the deposit of tubercle was localised, as in one apex or a lymph gland or single joint, but where tuberculosis was disseminated and complicated by secondary infections little good was to be expected. It ought, however, to be tried in every suitable case, as it certainly limited the spread of the disease.

Dr. HINGSTON FOX had used tuberculin for some years among private patients, in coöperation with their medical attendants. He at first gave it by the mouth, but the results were uncertain. The largest dose he had as yet given subcutaneously was one half mg. of T.R. The tuberculin inoculation test was now commonly used, but the inflamed condition set up in a latent lesion did not always subside easily. He related two cases in illustration of this test; in one of them the temperature remained above normal for three months, and a still longer period of rest in bed was needed. There were many other means of diagnosis, and he submitted that the inoculation test, on account of its risk, should be used only in exceptional and obscure cases. He hoped there would be a pronouncement on this point in the profession, else the valuable tuberculin treatment might be discredited by its association with the test. Moreover, in his experience the therapeutic doses provided a test in themselves; beginning with a minute dose, we could increase this until a perceptible reaction appeared, local, general, and focal; if this was repeated, it afforded good evidence that a tuberculous lesion was present. Dr. Fox asked the experience of others in the use of tuberculin for affections of the larger joints. He had found the treatment in a case of early hip-joint disease in an adult difficult and slow; a very small dose only was tolerated and only at long intervals.

Dr. R. A. O'BRIEN, speaking purely as a laboratory worker, had always failed to understand the differences in action of P.T. and T. in the treatment of tuberculous disease, because the two preparations were tested against the same standard and their toxicity for the tuberculous guinea-pig was the same. The outcome of a severe reaction was really to desensitise. If a lethal dose of tuberculin—e.g., 0·1 c.c.—were injected into a tuberculous guinea-pig it might die in, say, 24 hours, and post mortem the foci of disease would be in a condition of extreme congestion, but if the dose were just sublethal the animal would survive the very violent reaction and would probably live as long afterwards as other members of the same batch of tuberculous guinea-pigs. In other words, the severe reaction caused by a sublethal dose of tuberculin did not seem to induce any exacerbation of the tuberculous process or shorten the animal's life. Moreover, it would now be able to stand a dose considerably larger than the original lethal dose without fatal result. The practice of "cattle-faking" against tuberculin injections depended on this principle. There were three great problems facing the clinician. The first was—Can we immunise against tuberculosis? The answer was in the negative. There was no form of tuberculin, or of anything else, which could confer complete immunity against tuberculosis except actual infection with living bacilli of moderate or low virulence. A cow might be immunised against bovine tubercle by infection with the human bacilli. And, more than this, the production of tuberculous disease in one eye by infecting it with living bacilli caused a definite degree of immunity to a subsequent inoculation into the other eye. The second question, whether we could diagnose the existence of tuberculous disease by specific tuberculin tests alone, must also be answered in the negative. In sensitive animals, such as the guinea-pig, a reaction of tuberculin was, it was true, diagnostic of active disease, but in comparatively insensitive animals, such as the horse, goat, or man, a reaction only meant that the subject then had, or had previously had, tuberculosis. Speaking with all deference in a gathering of clinicians, he would say that in the absence of definite clinical signs, a positive tuberculin test in man meant active tuberculosis only when supported by persistent rise of rectal temperature following energetic exercise. As to whether we could prevent or foretell the existence of

[1] THE LANCET, April 5th, 1913, p. 965.

hypersensitiveness in a patient under treatment, this, he feared, was impossible. The determination of complement-binding antibodies in the serum was no criterion, because they were found also in cases that were improving. Agglutinins and precipitins certainly occurred in the serum, but we were not able to control the course of treatment by estimating them. He would not refer to the much-debated question of the opsonic index further than to remark that it was rare to find a phagocytosed bacillus in the natural course of tuberculous disease. Serum containing complement-binding antibodies robbed tuberculin of its power of killing a tuberculous guinea-pig and of producing a von Pirquet reaction, and these might occur in the disease due to natural infection, either progressing or being arrested, and whether tuberculin had been administered or not. The suggestion that the phenomena of anaphylaxis were analogous to those produced by tuberculin was not, he believed, borne out by investigation. The phenomena differed widely both in their clinical manifestations and in the post-mortem picture. A guinea-pig sensitised by an injection of protein and killed a fortnight later by anaphylactic shock following the injection of a second dose of the protein, died within a few minutes or in one to two hours owing to such a constriction of the bronchi that air could not pass to or from the alveoli. A tuberculous guinea-pig injected with tuberculin did not die for at least three to four hours and did not show the characteristic distension of the lungs. Moreover, as Dale had recently demonstrated, the uterus of a protein-sensitised guinea-pig when suspended in a bath of Ringer solution contracted if a very small quantity of the sensitising protein was added to the solution and was thereby desensitised to a further dose of the protein. The speaker had recently tried to obtain similar reactions with the uterus, but whether the guinea-pigs were sensitised with tuberculin, bacillary emulsion, or various bacillary extracts he could get no definite contraction of the uterus followed by desensitisation after the addition of old tuberculin or bacillary extracts, nor did the uterus of the tubercular guinea-pig show any such response, so that here again there was a wide divergence between the phenomena of protein anaphylaxis and those of the tuberculin reaction.

Dr. J. K. PATRICK gave his experience in a tuberculosis dispensary. It agreed with Dr. Raw's experience, that bovine tuberculin gave the best results in pulmonary tuberculosis, and *vice versâ*. He had treated lupus by tuberculin, and had found the results of diagnosis by von Pirquet's reaction pretty good in this disease. He had had good results of treatment in early cases of pulmonary tuberculosis.

Dr. A. BUTLER HARRIS discussed the treatment of tuberculous joints by tuberculin. He believed that if the joint was put at rest in an early case the tuberculin treatment helped.

Dr. ARTHUR LATHAM, in replying, feared that Dr. Butler Harris's hope was not to be realised in the immediate future. He agreed that dispensary treatment with intensive doses was overdone, but every method should be tried adequately, so that under the sanatorium benefit sufficient data could be obtained for comparison. He was surprised that Dr. Raw used only doses varying in size from 0·0001 to 0·01 mg. He would have supposed that an initial dose of 0·0001 mg. would have caused a reaction in many of the cases described. His impression was that immunity became greater and relapses less frequent as larger doses were used. He was not convinced by Dr. Raw that human tuberculin should be used for infections with the bovine bacillus and *vice versâ*, or that tuberculin often diminished the necessary length of treatment, although it certainly gave the necessary stimulus in a few cases merely holding their own. He emphasised the fact that it was of no value in cases where auto-inoculation was frequent, irregular, and uncontrollable. He did not believe in using the subcutaneous test wholesale. A focal reaction was the only one of clinical value, but even it held sources of error. It could not be relied upon in itself, and the deductions drawn from its effects should always be considered side by side with any evidence obtainable by other means. As to the value of the therapeutic test—of noting, for diagnosis, the effect of working gradually upwards from a small dose—he had treated with tuberculin certain cases, chiefly of anæmia with slight fever in young women, in which there was a strong suspicion, but no absolute proof, of tuberculosis, and had found a more rapid fall of temperature and improvement in the condition of the blood than was usually obtained by the ordinary remedies. In such cases the marked improvement under tuberculin suggested that the condition was tuberculous. Referring to the supposed differences in toxicity of human and bovine tuberculin, he was not convinced that they differed as much as some authorities held. With the exercise of sufficient care he had found that reactions seldom followed the use of T.R., even when doses as large as 5 mg. were eventually injected. The length of time that dilutions of T.R. had been made greatly influenced their toxicity and therapeutic efficiency.

Mr. FRANK CURRY demonstrated the preparation of the various tuberculins and their characteristics.

The PRESIDENT, after thanking those who had taken part in the debate, spoke of cases of tuberculous spine treated by tuberculin. He now knew that the reason why this treatment was unsuccessful was that these cases were purulent and caseous from the very first.

LIVERPOOL MEDICAL INSTITUTION.—A meeting of this society was held on April 10th, Mr. Robert Jones, the President, being in the chair.—Dr. Edward Malins, of Birmingham, presented to the society a portrait of his father, Samuel Malins, who died in 1843, and who had been a lecturer in midwifery in the Liverpool School of Medicine, and one of the earliest members of the society.—On the proposal of Sir James Barr, seconded by Mr. T. H. Bickerton, the thanks of the meeting were cordially given to Dr. Malins for his most interesting donation.—Mr. R. W. Murray read a note on an Operation for Undescended Testicle. At least ten different methods of treating the condition were described by various authorities. There was always much difficulty in keeping the organ in the scrotum. Mr. Murray opened the canal, exposed the testicle, hernial sac, and vas deferens at the level of the external ring; the sac was transfixed and cut across, but the lower part was left attached to the testicle. Then all the structures attaching the testicle were cut across between two ligatures and the testicle and sac were placed in the scrotal bed. The immediate result was satisfactory, the testicle lived though its blood-supply was cut off; it possibly supplied an internal secretion.—Mr. F. T. Paul said he had treated these cases by suturing the tissues in the canal across the cord to prevent it from being drawn up. He did not sacrifice the duct.—Dr. Sydney M. Whitaker showed a woman who had suffered from Rheumatoid Arthritis for 15 years. All treatment proved useless except a 14 day fast, during which all pain left the joints. A coliform autogenous vaccine also produced slight benefit. As X rays showed intestinal stasis an ileo-colostomy was performed, with marked improvement in the joints and general condition.—Dr. Walter C. Oram read a paper entitled, "The X Rays as Therapeutic Agents." The theories with regard to the production of the rays in the focus tube were briefly reviewed, and the difference between hard and soft rays in their physical properties pointed out. The measurement of the dosage by Sabouraud's pastilles was described and methods of ascertaining the penetrating power indicated. Three essentials were laid down as necessary for efficient X ray treatment of any tissue: first, that the rays must reach the tissue to be treated in sufficient quantity; secondly, that they must be absorbed by the tissue; and thirdly, that the tissue must be susceptible to their action. It was pointed out that the denser tissues of the body—the spleen, the thyroid, and the ovary—were far more susceptible to X ray treatment than those of less density, such as the muscles, the kidney, and the brain. Although the variation in density between one tissue and another might seem small, it was shown experimentally that these small variations caused considerable differences in the absorptive power for the rays. Tissues varied much in their susceptibility; thus X ray exposures over the ovarian regions could bring about the suspension of activity of the ovaries, while the overlying skin, which had in the interval received a considerable dose, was not affected. The use of radiotherapeutic applications in malignant diseases, eczema, psoriasis, leukæmia, goitre, and other diseases was discussed.—Dr. F. H. Barendt thought the X rays a valuable adjunct to treatment of skin diseases. In some cases of tubercular disease good results were obtained, while in others the results were not satisfactory—the knowledge of the susceptibility of the tissues was wanting. In cases of hypertrichosis X rays were inadvisable, and in ringworm this treatment

should be left for the rebellious cases. In patches of localised eczema with intense pruritus X rays were of signal benefit.—Mr. C. Thurstan Holland thought the methods of measurement should be more accurate. In the treatment of malignant disease the method was of use if started early after a surgical removal; it then prevented recurrence, and secondary malignant nodules often disappeared. In menorrhagia the loss could be checked without risk. Pruritus was in many cases cured very rapidly.—Dr. R. W. MacKenna also spoke of the rapid action in cases of pruritus. He did not think the expectations with regard to malignant disease had been fulfilled.—Sir James Barr had used X ray treatment in cases of leukæmia, and had had rapid and striking improvement. Unfortunately, this had not been maintained, and when symptoms again appeared the X rays had no effect and all his cases had died.—Dr. Oram replied.

Reviews and Notices of Books.

Collected Studies on Typhus. Hygienic Laboratory, Treasury Department, United States Public Health Service, Bulletin No. 86. October, 1912. Washington: Government Printing Office.

THE Hygienic Laboratory of the United States Public Health Service has issued a bulletin containing collected studies on typhus. These papers, by Assistant-Surgeons Joseph Goldberger and John F. Anderson, discuss among other questions the etiology of "Tabardillo," the typhus fever of Mexico, and the conclusions which are arrived at are for the most part based upon results obtained by the inoculation of monkeys. At least two species of monkey, the Macacus rhesus and Cebus capuchinus, were found to be susceptible to direct inoculation with the blood from human cases of tabardillo, and blood taken from the monkey Macacus rhesus, thus infected, was used for the successful inoculation of a second monkey of the same species. Moreover, one attack of the disease in the monkey, produced by blood inoculation, induced a definite immunity to a subsequent inoculation with virulent blood, and when blood serum from a human case of tabardillo was passed through a Berkefeld filter it failed to produce disease when inoculated into a monkey. Before the observations of Nicole came to their knowledge conclusions were arrived at which were based upon other grounds than those derived from the laboratory. Thus an American non-immune came daily in contact with cases of tabardillo in Mexico, and on two nights slept in a bed which for three preceding nights had been slept in by a patient in the first three days of a well-marked attack of tabardillo, the bed clothes of which were then changed. No insects but fleas were found in the room, and the American non-immune escaped infection. The fact is also cited of the attendance of non-immune nurses on 30 cases of typhus occurring during some 23 months, in which none of the nurses were infected. These observations, coupled with the fact that the flea is ubiquitous, whereas the disease is usually limited to the lowest social class, led to the inference that the flea might be excluded. Again, the fact that the bed-bug is attached to houses and that there is no evidence that the tabardillo is a house disease led to the inference that the bed-bug is not concerned in transmitting the disease. A further point noted—viz., that the flea and bed-bug are common in the lowlands of Mexico, while tabardillo is only exceptionally found there—supported these inferences.

A separate paper is devoted to a discussion of the question whether Brill's disease, which is endemic in New York city, is identical with the Mexican typhus fever. Experiments on the rhesus monkey led to conclusions in the affirmative, and further, the inference was drawn that, inasmuch as the New York disease is of European origin, the typhus fever of Europe and that of Mexico are also identical. An interesting account is given of experiments made to determine whether body lice and head lice may become infected with Brill's disease, and whether the virus contained in the bodies of these insects is transmissible by subcutaneous injection of the crushed insect or by its bite. These questions are answered in the affirmative in respect of the body louse, and in the case of the head louse also in the affirmative, except that the ability of the latter to infect by its bite is spoken of with more caution as a "belief."

Experimental studies with the virus of typhus led to interesting conclusions. Thus, it was found that the blood of the monkey which has been infected may be virulent 24 to 32 hours after the return of the temperature to normal. In respect of the localisation of the virus, the evidence obtained favoured the view that the typhus virus is extracellular and free in the circulating plasma, and that the serum of virulent typhus blood is constantly infective, whether obtained from defibrinated blood or after clotting. The conclusion was arrived at as the result of a number of experiments that there was no evidence to show that the virus passed the Berkefeld filter, and in respect of two attempts which were made to filter the virus as it exists in the body of the louse, in one the monkey inoculated with the filtrate was subsequently found to be immune. The virus was found to retain its virulence after heating at 50° C. for 40 minutes, to be deprived of its virulence by heating at 55° for 15 minutes, to be probably deprived of its virulence by heating at 60° for five minutes, and to retain its infectivity after freezing for at least days.

A paper on Studies of Immunity and Means of Transmission of Typhus led to conclusions some of which may here be briefly stated. As many as 22·5 per cent. of rhesus monkeys possess at least a transient natural immunity, and probably 3·5 per cent. possess a permanent natural immunity. A well-marked typhus reaction confers an immunity that may be present after at least two years. The guinea-pig is, and a very small proportion of rabbits may be, susceptible to infection. The immunity conferred by an attack of typhus is specific. Typhus-immune serum obtained between the fifth and the fourteenth day of convalescence has protective value when injected simultaneously with, or within 48 hours after the inoculation of the virus, but immune serum obtained on the thirtieth day of convalescence probably has no appreciable protective influence. When immune serum and virus are inoculated simultaneously no immunity results. When the immune serum is injected 48 hours after the virus, an immunity, probably active in nature, may perhaps result. The therapeutic value of immune serum is at best slight. Vaccination with heated crushed-lice suspension was attempted with a negative result. The bite of the body louse may perhaps be infective within four days after the infecting feed. Attempts to transmit typhus by means of the bites and subcutaneous injection of crushed bed bugs were unsuccessful. The buccal and pharyngeal secretions of typhus were not found to be infective, and therefore droplet infection plays no part in the transmission of the disease.

Diseases of Children. By BENJAMIN KNOX RACHFORD, Professor of Diseases of Children, Ohio-Miami University of Cincinnati. London and New York: D. Appleton and Co. 1912. Pp. 783. Price 25*s.* net.

AS a writer on medical subjects Dr. Rachford is probably little known in this country, but his book on the diagnosis and treatment of children's diseases now before us should serve as an introduction which will invite closer acquaintance. This new publication seems to strike a happy mean between the large text-book which is employed only as a

work of reference and the small compendium to which the student pins his faith in anticipation of his professional examinations. In a book so practical it is curious that many really important points in connexion with the etiology and pathology of tuberculosis and syphilis should have been omitted, and that there should be no mention at all of such rare, though important, diseases as achondroplasia and cleido-cranial dysostosis. Upon the view that immunity to tuberculosis, the prerogative of the healthy adult, is not due to non-infection, but to effective and timely inoculations with the specific bacillus, Dr. Rachford's statement that, "other things being equal, the danger of contracting tuberculosis is in direct proportion to the frequency and size of the dose of the contagion," cannot be regarded as a satisfactory interpretation of the facts.

The chapters which are concerned with the general management and hygiene of infancy are practical and to the point, and the general principles formulated therein for the instruction of students are founded on a basis of which few will disapprove. As regards feeding the author says: "It follows, therefore, that the percentage method of feeding which gives to the infant the relative quantities of fat, carbohydrates, proteins and salts it needs, must ever remain the basis of scientific feeding, and that in using this method we should, to secure fairly accurate quantities, conform, within certain limits, to the calorimetric standard, and should, to prevent or correct gastro-intestinal disturbances, change the percentages of the various food ingredients to conform to the digestive capacity and food idiosyncrasies of the individual infant." Though somewhat involved in construction this statement represents, in our opinion, a very judicious summary of the ends at which scientific feeding should aim. It conveys a thinly veiled admonition to those who ridicule the principles of scientific accuracy and should tend to curb the enthusiasm of those who would push the refinements of the percentage method beyond the bounds of reason. Again, with respect to the calorimetric standard, we are reminded that however useful the formulæ may be in guiding us out of the reach of gross error, in blindly following its teaching we run a risk of starving or overfeeding infants who are subjects of idiosyncrasies of metabolism.

In another chapter a very excellent account is given of that troublesome neurosis "thigh-friction," or, as the author calls it, "pseudo-masturbation." The practical advice which is offered with respect to its prevention and cure will be gratefully acknowledged by practitioners who have to deal with these intractable cases. We cannot, however, agree with the distinctions which the author draws between this the pseudo form and the true form, which occurs at a later period of childhood. The two conditions appear to us essentially the same, although accompanied by different psychological phenomena, and in spite of the fact that in the so-called pseudo form the orgasm is incomplete and the testicular secretion absent. The subject of enuresis is also dealt with in a thoroughly practical manner, and its dependence on a triad of factors—namely, the degree of stability of the centres concerned, the degree of concentration of the activating qualities of the blood, and the number and the intensity of the reflex sources of irritation—is well indicated. This philosophic conception of a very complicated condition compares very favourably with the bald etiology and crude pathogenesis which we usually find ascribed to it in text-books on the subject of children's diseases.

Although there is little that is original or new in this volume, there is very much that is new in the way old and familiar facts are presented. We regard Dr. Rachford's book as well worthy of the attention of English readers.

Studies in Cancer and Allied Subjects: Pathology. Conducted under the George Crocker Special Research Fund at Columbia University. Vol. II. New York: The Columbia University Press. 1912. Pp. 267. Price 21*s.* net.

IT appears that Vol. I., which will give a "General Report on the Present Status of Cancer Knowledge," is "in preparation." Meantime Vol. II. is before us—a quarto with stately broad margins to its well-printed matter, to which Professor W. G. MacCallum writes an introductory chapter. The anatomy, structure, and clinical history of tumour growth have been worked at by thousands of investigators, but when we come to the question of the causation little advance has been made, as pathologists and clinicians allow regretfully. Even our knowledge of the relation of the cells of a tumour to the tissue in which they begin their growth is still very uncertain. Of the current theories none is satisfactory. "To determine the etiology of tumour growths, the causes of the growth of cells in general, and the factors which underlie the increase in the energy of their growth, as well as those which limit or hold it in check, the last ten years have contributed marvelous things." The next ten years may tear aside the whole veil. Such is the forecast of the optimists.

The report contains in all 27 articles reprinted from various journals. Fourteen at least of these articles are contributed by Dr. Isaac Lewin, either in his own name or in conjunction with others. Amongst these contributions are Resistance to the Growth of Cancer in Rats by injection of Autolysed Tissue, Cancer of the Uterus, based on Clinical Statistics, Immunity to Growth of Cancer induced in Rats by Treatment with Mouse Tissue, Immunity in Cancers of the White Rat, Cancer among the American Indians, Heredity in Cancer in the White Rat, Metastases after Intra-vascular Injection of Tumour Emulsions, and the Mechanism of Metastases in Malignant Tumours, Specific Stroma Reaction, and Hormones and New Growths. Some of the contributions are very short, extending to but a page or two, and naturally there is some amount of repetition. Dr. Robert A. Lambert and his collaborators are responsible for contributions dealing with parabiosis of rats and mice, growth *in vitro* of transplantable sarcomas of rats and mice, migration of sarcoma cells growing *in vitro*, phagocytic inclusion of sarcoma cells *in vitro*, characteristics of growth of sarcoma and carcinoma cultivated *in vitro*, cultivation of tissue in plasma from allied species, and as a method for the study of cytotoxins. Dr. R. T. Frank discourses on the causes which produce growth of the mammary gland and the functions of the ovary. A great stride was made, in fact a new era was opened up, in the investigation of the question of new growth formation when Hanau, Morau in 1889, and with still more precision Jensen, and Loeb in 1901, transplanted carcinoma and sarcoma of white mice and rats into other animals of the same species. These researches showed the difference in the susceptibility of different animals to the growth of an implanted tumour.

Some interesting details are given in the paper regarding Cancer among the American Indians. It is well known now that cancer may occur not only in every human race but in nearly every species of vertebrates. Cancer of the penis is extremely frequent among the Hindus, while not a single case is met with among Mohammedans. The fact is, of course, attributed to the circumcision practised by the latter. Cancer is rare among Indians. As to Heredity in Cancer of the White Rat, the work was begun in 1910 by Dr. Lewin and his collaborators, and the results so far "seem to be extremely suggestive." It is much the same with Immunity

in Cancers of the White Rat. A mouse tumour through a sojourn in the rat "takes" in a small percentage of inoculated animals, and this percentage increases in subsequent generations. Evidence is brought to show that immunity to cancer growth, but not to tumour grafting, is caused, not by differences in intracellular nutrition, but by an active inhibitory influence of the organism of the host on the cancer cells. Other studies were directed to the search for evidence of the true nature of this inhibitory influence, and when we inquire what is the result it is stated that "immunity to cancer growth is due to an active inhibitory influence of some substance present in the body fluids of the immune host and not to any purely cellular activity," and it is concluded that "it must be very similar to, though not identical with, immunity in bacterial diseases." In regard to metastases of malignant growths, the fact that carcinoma forms metastases in lymphatic glands is due, not to the difference of transportation in the carcinoma and the sarcoma, but to the specific affinity between carcinoma cells and the cells of lymphatic glands. Sarcoma cells may find easy access to glands, but may not find a favourable medium for their proliferation. As to the later studies on Heredity in Cancer the conclusions arrived at by Dr. Lewin are not to be considered in any way final; indeed, the author points out that his more recent studies show that the conclusion reached by him that hereditary disposition has no influence on cancer may have to be revised in the future. The difficulty in all these papers is to get to facts, and this paucity of facts makes it so difficult to give a connected summary of genuine reliable results. The whole is suggestive of the phrase "to be continued," but it is fair to allow that much of our knowledge in these fields is transitional.

Most interesting contributions are the accounts of growth *in vitro* of transplantable sarcomas of rats and mice by Lambert and Hanes. Harrison cultivated tissues of the frog embryo in lymph, but with the substitution of blood plasma for lymph by Carrel and Burrows in 1910 the method was simplified, and sarcomas, both human and avian, have been cultivated in this fluid, and the migration by amœboid movement of sarcoma cells has been observed, obviously a phenomenon of importance in relation to the problem of the spread of malignant growths in the body. An interesting account is given of the character of growth, proliferation, and karyokinesis of sarcoma and carcinoma cells *in vitro*. Both cells are also actively phagocytic. Nor need such cells be cultivated in plasma obtained from the same species in which the original tumour grew. Rat sarcoma can be cultivated in the plasma of an alien species such as a mouse or a guinea-pig. The same method has been used for the study of cytotoxins. In view of the well-known experiments of Claypon and Starling on breast hypertrophy in pregnancy from "breast hormones" the paper by Frank and Unger is particularly interesting. They conclude that a breast hormone "elaborated by the fetus" has not been demonstrated and must be considered purely hypothetical. In his paper on the Function of the Ovary Frank remarks that this subject seems hardly appropriate in a collection of monographs dealing with the cancer problem and proceeds to justify its inclusion.

It will be seen that the monographs record the endeavours of numerous eager observers to reach a definite goal, and consequently in the march of events many of the conclusions must be only tentative and suggestive. It is well to have the researches on such an important subject incorporated in one volume, for this will render the methods of research, as well as such conclusions as may safely be relied on, accessible to the numerous workers in the pressing problem of cancer.

LIBRARY TABLE.

Manual of Chemistry. By W. SIMON, Ph.D., M.D., and DANIEL BASE, Ph.D. Tenth edition, thoroughly revised. London: Baillière, Tindall, and Cox. 1912. Pp. 774. Price 15*s.* net.—In previous references to this work we have expressed a favourable opinion of it, and the fact that it has reached a tenth edition is proof of its appreciation by those readers for whom it was primarily written—viz., students of medicine, pharmacy, and dentistry. It presents a thorough treatment of the subject so far as the special requirements indicated go, and each successive edition has kept pace with modern developments. We are glad to notice in the present edition that the physical aspects of chemical phenomena, which are increasing in importance as regards physiological study day by day, have received conspicuous attention. There is, for example, a new chapter on electrolytic dissociation, in which are considered the origin of the theory of ionic equilibrium, ionisation of acids, bases, and salts, reactions on the ionic basis, hydrolysis, and so forth. In fact, the authors have approached the subject from beginning to end with an eye to the directions which modern teaching and interpretations are taking. The ground covered is a striking feature of the work, having regard to the space at the authors' disposal. Thus the student is introduced in the first section to chemical physics, next to principles of chemistry, then to non-metals and their combinations, then to the metals with their combinations; these are succeeded by sections on analytical chemistry, the carbon compounds or organic chemistry, and, finally, physiological chemistry, which includes a very useful chapter on proteins, digestion, milk, and urine. The illustrations, of which there are 82, are well executed, and they include one coloured spectra plate and eight coloured plates portraying 64 chemical reactions. Our favourable opinion of this book is advanced further by a consideration of the very careful and up-to-date work which has been devoted to this last edition. The authors have succeeded in providing students of medicine, dentistry, and pharmacy with a book which eminently suits their particular needs at the commencement of their studies.

Clinique Médicale de l'Hôtel-Dieu de Paris. Par le Professeur A. GILBERT, Membre de l'Académie de Médecine. Paris: J. B. Baillière et Fils. Pp. 312. Price 12 francs.—The medical world has been familiarised in the past with the careful and painstaking work performed in the wards of the Hôtel Dieu at Paris by the classical lectures of Trousseau and his pupil Dieulafoy. The present work by Professor A. Gilbert carries on the tradition of the Hôtel Dieu for accurate and clear exposition, with the help of all the modern aids to diagnosis, physical, chemical, and bacteriological. It contains the clinical lectures given during Professor Gilbert's first year of teaching, 1910–11, with the coördinated assistance of chefs de clinique, chefs de laboratoire, and various specialists, which is so noteworthy a feature of the Hôtel Dieu. The opening lecture, which occupies the first 36 pages, gives an illustrated historical account of this ancient hospital, which is said to have had its inception in the ninth century. This is followed by one on the general principles of therapeutics. These are followed by seven lectures on chronic nephritis, three on Raynaud's disease, two on glandular tuberculosis, four on acholuric icterus, and one on essential paroxysmal hæmoglobinuria, which give ample opportunities, well taken, for displaying the services of radioscopy, blood pressure readings, blood and urine examinations, bacteriological investigations by staining and culture, and so forth.

THE LANCET.

LONDON: SATURDAY, APRIL 26, 1913.

The Health of the Rising Generation.

Mr. PEASE, in the House of Commons recently, on a vote to complete the sum of £14,000,000 for his department, made the annual statement of the President of the Board of Education, and that much of what he said was of the first importance to the medical profession will be gathered by our report of his statement last week. The children in the elementary schools of this country, on whose upbringing no less than £11,000,000 of the £14,000,000 in question is spent, are largely in the charge of the medical profession, so general have been the pathological defaults revealed by the inspection of school children. In one important direction the number of these children is undergoing a substantial reduction. In 1903 there were 613,000 infants between three and five years attending elementary schools, while last year the number had dropped to 332,000, a reduction of 45 per cent. in ten years. This reduction will not in the end lighten the burden to the ratepayers. It is true that inquiries show that the State education in the infants' department in the past has not been conducted in the best interest of the smaller children, while Mr. PEASE'S readiness to adopt the advice of the Select Committee which, some four or five years ago, reported that, given a mother who could do her duty, home was the best place for tiny children, was applauded by the House of Commons. But the terrible question of environment prevents us from looking forward to the time as being very near when to leave the infant with the mother is necessarily the preferable course from the point of view of public health. Nursery schools on a large scale seem to form the proper way of dealing with the difficulty, and some such provision will probably be made.

A direct appeal to medical interest is now regularly offered by the Board of Education when reference occurs to the vast efforts for the removal of those physical disabilities which preclude the children from receiving proper benefit from State education. Simple and obvious as the proposition is, that the object of the education given to the child should be to turn him out from school sound physically as well as mentally—so that, on the one hand, he can take full advantage of what he has learned and apply it to the real education of the future, namely, the conduct of life, and, on the other hand, can gather from practical experience how to look after his own health in ordinary circumstances—simple and obvious as this proposition is, it is not often stated in so many words by educational authorities, and it is far from regularly acted upon in this country. It is necessary that the public should understand that the physical state of children of school age is not satisfactory, and it is from the medical profession that their information should be obtained, if only because the statements on the subject made by many energetic lay workers are too often damaged by over-strenuous advocacy. Wild talk about national degeneracy is actually harmful to the cause which it is intended to help, producing in the public the impression either that things have got beyond cure or that wilful exaggeration is being used with a view to frighten the country into paying for something fantastic or sentimental. Mr. PEASE, it is well known, is himself a practical exponent of the theory that to enjoy physical training and exercise helps the young man to be a good citizen; and while, as ever, the main difficulty of obtaining for our State school children the healthy body in which to develop the healthy mind is presented by their home circumstances, we must on no account wait idly doing nothing because the housing question largely baffles solution. Much may be done for the physical good of our young by a judicious use of organised recreation during school hours. This must not be taken to condone that passionate devotion to sports which to our mind has been of recent years a source of national loss and a wasting of valuable energy. We are glad to see on all sides a revolt from this worship of athletics; but the onus upon all to assist the rising generation to grow up strong and healthy is felt very keenly by many who, none the less, resent the time spent by the population in playing games and, worse, in watching games being played.

The system of medical inspection of the State school children has now been in working order for some time, and has brought to the public attention the alarming amount of disease present, and present apparently with the tolerant acquiescence of a majority of the parents. As many as 50 per cent. of the children of school age have been found to suffer from serious decay of their teeth, while 10 per cent. display proofs of malnutrition, not all of whom owe their plight to destitution any more than to neglect or bad management. We lay no stress upon the occurrence of other preventable pathological conditions among the school children, for as yet we cannot estimate closely the measure of the evil. Within rough boundaries its extent is known to our readers and it is also known that there has been great difficulty in securing that medical treatment should follow upon medical inspection. In no place has the improvement of methods in this direction been greater than in London, where the difficulties in the organisation of medical treatment have been found to be so grave, and where they are now being faced with some success. The essential thing from the medical point of view seems to be to secure as far as possible that the regular attendance of the children should not be nullified by the fact that when their time of education is complete there is no particular opening in life for them, no continuation or trade schools established which would help them to make some use of the education which they have received. We have no doubt whatever that the establishment of such schools, with the provision that this would imply of regular and skilled labour, would work incalculably to the improvement of the public health of the next generation. The general feeling is becoming manifest in this direction. Last week the PRIME MINISTER received favourably a deputation, introduced by Prince ALEXANDER

of TECK, composed of members of the council of the British Boys' Training Corps, an institution which proposes to provide systematic military and industrial training for boys after leaving school. Undoubtedly this institution, which is well worth pecuniary support, has for its main object the preparation of an intelligent and skilled class for the army. But what can be done for potential recruits, or for those whose manners have already earned them a visit to an industrial school, ought to be done in some large measure for the general school population.

The Royal Medical Benevolent Fund.

WE have called the attention of our readers on several occasions already to the public dinner of those interested in the work of the Royal Medical Benevolent Fund and its associated Guild, which will take place on Wednesday next, April 30th, at the Hotel Cecil, London, under the presidency of H.R.H. Prince ARTHUR of CONNAUGHT. We hope sincerely that the result of the dinner will be the raising of a substantial sum of money for most deserving objects. No one can read the brief summaries that we publish from time to time of the cases which the committee of the Fund is able to relieve without recognising that here is an organisation worthy of all support, ministering in the most direct way to the needs of necessitous members of the medical profession, or to the widows and children of those of our colleagues whom death has overtaken ere they had made provision for their dependents. The Royal Medical Benevolent Fund is now in the seventy-seventh year of its working, and has granted over £160,000 to its numerous beneficiaries. At first it was a small and struggling organisation, but now its annual distributions in money amount to thousands —in 1912 nearly £6000 were granted in donations and annuities—while its auxiliary branch, the Ladies' Guild, is coming to the aid of numerous families where the provision of clothing, and the assistance of payment in school fees may make all the difference in the fight with poverty, between complete surrender and successful struggle We have no hesitation, therefore, in bringing the objects of the Fund before our readers in a prominent way, at a time when pecuniary support will be particularly acceptable to those responsible for the organisation of the Fund. The Fund is deserving of all the help that members of the medical profession can afford to give it. It has been throughout splendidly and economically administered, and is doing a great work. It is sincerely to be hoped that the opportunity of the coming banquet will be taken by many laymen to contribute to the Fund. The public supports only in the barest way the charities of the medical profession, and yet no section of the population has a more close and direct claim upon its generosity. The medical life is a hard one, the number of those who follow it who are in a position to make large donations in aid of their less fortunate brethren is very small, and the failure of many medical men to leave at their death adequate support for their wives and children is but rarely due to improvidence. The medical man marries young—in general practice this is an almost invariable rule. His chances of securing a good return in money for his efforts are jeopardised by an extraordinary number of fortuitous circumstances against which no precautions are of much avail, and these precautions are absolutely ruined by bad health. A general practitioner is often some way advanced into middle life before he can set aside from his earnings any regular sums for investment, or pay any substantial premiums to a life insurance company. To say that in these circumstances those dependent upon him would not be able, in the case of his untimely death, to retain the social and educational advantages which they had enjoyed during his life is entirely to understate the case. If no greater hardships than such were in question our plea for the support of the Royal Medical Benevolent Fund, though it would none the less be due, would be of a much less urgent nature. What we want to bring home to our readers, and through them to the public, is that in many cases a medical man through no fault of his own, and his dependents certainly through no fault of theirs, fall into absolute penury, in which plight nothing may stand between them and hopeless misery but such grants as the Royal Medical Benevolent Fund can make or that private benevolence may supply.

Lind-af-Hageby v. Astor and Others.

THE lately concluded action for libel brought by Miss LIND-AF-HAGEBY will be identified by posterity when it consults the law reports with the name of Mr. ASTOR, the proprietor of the *Pall Mall Gazette*, in which paper appeared the outspoken and candid article by Dr. C. W. SALEEBY that gave rise to the recent unsuccessful claim for damages. The main issue, however, lay between the plaintiff and the author, and the actions launched against the proprietor, the editor, and the printer had to stand or fall according to whether Dr. SALEEBY succeeded in maintaining the position taken up by him in criticising the "antivivisection shop" in Piccadilly in the course of a review of a work by Mr. STEPHEN PAGET, the honorary secretary of the Research Defence Society. Dr. SALEEBY is, therefore, the person first to be congratulated upon the conclusion of the protracted trial brought at last to an end by a verdict for the defendants, although the expression of our satisfaction at his success must be taken to include Mr. ASTOR, Mr. GARVIN, and the printer of the *Pall Mall Gazette*.

The result was no doubt anticipated by all not blinded by prejudice who followed the evidence in the daily newspapers. The case was very fully reported, and naturally so, for the long-standing quarrel between the antivivisectionists and the exponents of scientific medicine is a matter of the first public interest. The daily reports have therefore rendered it unnecessary for us to explain at any length the questions raised upon the pleadings before Mr. Justice BUCKNILL, to describe the matter out of which they arose, or to recapitulate the incidents and features of a trial the wearisome length of which seems to require explanation.

The prolixity was perhaps not altogether avoidable when the circumstances in which the case originated are considered and the nature of the observations into which Miss LIND-AF-HAGEBY read a personal libel upon herself. The enormous expense, however, of protracted litigation renders the importing into it of irrelevant matter a source of hardship to the party not responsible for its introduction, and the fact that LIND-AF-HAGEBY *v.* ASTOR became something like another Royal Commission upon experiments on animals must be held to be largely due to the consideration extended in our courts to litigants appearing in person, and such litigants do not suffer if they are women. Miss LIND-AF-HAGEBY certainly cannot complain that she did not have what sportsmen would call "a run for her money." She was occasionally stopped, it is true, but was able to inform the court, among other matters, of often-quoted opinions attributed to ROBERT BROWNING and TENNYSON, to RUSKIN, to the late Lord COLERIDGE, and to the late Lord BRAMPTON, the importance of which must fall to the ground when we find persons of equal intellectual fame and strength of character holding opposite views. We select this particular irrelevancy for special reference because we regard it as typical of sentimental reasoning. It is on a par with the cross-examination of Sir VICTOR HORSLEY, who was asked whether he was recently at variance with the majority of the medical profession. The suggestion intended to be conveyed was that because Sir VICTOR HORSLEY differed from some of his colleagues upon questions relating to medical politics, they would not endorse his opinions as to the utility of experiments on animals, or honour him as a great surgeon eminently qualified to assist any tribunal with his evidence on such a topic.

Even, however, with the aid of irrelevancy the trial just over does not appear to have advanced the cause of those who denounce all experiments upon animals. Neither the allegations put forward as facts, nor the opinions of medical witnesses appearing as experts for the plaintiff, contained anything that we have not heard before, or, for the most part, that cannot be found in the evidence which was not followed by the late Royal Commission in its report. The jury were told, as they may be told again, that HARVEY not only owed nothing to experiments conducted upon animals, but that he contributed nothing to science, being merely the man who embodied and put in order the discovery of others who made no experiments; that PASTEUR advanced science only "from his point of view" and by his treatment of rabies succeeded merely in increasing the number of cases of that fell disease; that no discovery of any value attributable to experiments upon animals was ever made by KOCH, whether with regard to tuberculosis, to pneumonia, or to tetanus; that Sir VICTOR HORSLEY has achieved nothing by experiments upon animals because the operations for which he claims utility are useless; that the action of such drugs as veronal, sulphonal, digitalis, antipyrin, and cocaine is in no way better understood from any investigation of their characteristics for which animals have been employed; that serum inoculation for plague in India has not only failed to lessen the ravages of the disease, but has actually increased them; and that experiments upon animals are not necessary to advance our knowledge of bacteriology. The reiteration of assertions like these, even when they are made under the sanction of an oath in the witness-box, does not perhaps do much harm. Such statements can be contradicted promptly by witnesses standing upon equal ground before the law. And when an issue is being fought in a court of justice, reasoning laymen are apt to inquire who are those who thrust forward strange doctrines. They weigh their names and fames in the balance against those of the men who so clearly and confidently declare them to be wrong. When this occurs it may be said with satisfaction that on the whole the progress of error is arrested, apart from the weight carried by a jury's verdict.

Of course, we do not suggest that everyone is convinced by the evidence of physiologists and surgeons whose names are household words in their professions. There will be many who will point to the medical evidence called by Miss LIND-AF-HAGEBY and to that of the various laymen whose social and other distinctions matter nothing when we consider to what their testimony was directed. There are also, we must always remember, persons from time to time found clinging to the time-honoured belief that the world is flat. No one is likely to convince a large proportion of Miss LIND-AF-HAGEBY'S sympathisers and admirers that every word of her statements and suggestions is not true. They will continue to aver, as she with the support of others has averred, that experiments are conducted upon animals that are only nominally anæsthetised, and that "vivisectionists" perpetrate unnecessary acts of cruelty because—if any charity is to be accorded to them—their eagerness for their imaginary discoveries renders them oblivious of, and indifferent to, animal suffering. Fortunately, this kind of abuse defeats itself. The occasion of the trial has enabled those who are engaged upon scientific research to justify their position and to vindicate their good name; this has been observed with satisfaction by the public, who have had an opportunity to read in their daily newspapers the plain and forcible evidence given for the defence by Professor W. M. BAYLISS, Professor A. D. WALLER, Sir VICTOR HORSLEY, Dr. C. J. MARTIN, Dr. E. W. GOODALL, Dr. F. F. CAIGER, Dr. J. MACKENZIE, Dr. ALICE CORTHORN, Professor A. R. CUSHNY, Dr. W. H. EYRE, and Dr. W. BULLOCH. We give the general public credit for being able to judge whether this evidence was honestly and straightforwardly given, and whether it was in any way shaken by a plaintiff who had fully the usual opportunities for cross-examination, was mistress of her own side of the case, and who showed herself throughout the trial an able and dexterous advocate of her cause.

CIRENCESTER (GLOUCESTERSHIRE) HOSPITAL.—The Cirencester Hospital was formally re-opened on April 17th by Lady Bathurst. The old building has been brought up to modern requirements and a new wing has been added, which will increase the number of beds from 13 to 17. The cost of the undertaking was defrayed by the generosity of the late Mr. D. G. Bingham, who gave £2500 for the purpose. Mrs. Wilfred Cripps has subscribed £500 towards the endowment fund of the charity.

Annotations.

"Ne quid nimis."

YELLOW FEVER COMMISSION (WEST AFRICA), 1913.

THE Secretary of State for the Colonies has appointed Sir James Kingston Fowler (chairman), Major Sir Ronald Ross, Colonel Sir William Leishman, and Professor W. J. R. Simpson to be a Commission to study the nature and the relative frequency of the fevers occurring amongst the Europeans, natives, and others in West Africa, especially with regard to yellow fever and its minor manifestations. Mr. A. Fiddian, of the Colonial Office, has been appointed secretary of the Commission, and Mr. T. F. G. Mayer, West African Medical Staff, assistant secretary. In the absence of special reasons the Commission will not themselves proceed to West Africa, but local investigators will work under their direction at certain centres. As at present arranged those centres will be Freetown in Sierra Leone and Sekondi and Accra on the Gold Coast. The investigators at Freetown will be Major J. C. B. Statham, R.A.M.C., sanitary officer of the Command, and Dr. G. G. B. Butler, of the West African Medical Staff. Those at Sekondi will be Dr. H. S. Coghill, assistant at the Medical Research Institute, Lagos, and Mr. H. M. Hänschell, senior demonstrator at the London School of Tropical Medicine. Those at Accra will be Dr. G. E. H. Le Fanu, of the West African Medical Staff, and another. The investigation will be set on foot towards the end of April or early in May. Endeavours have been made to enlist the coöperation of all medical men practising in the British dependencies in West Africa, whether as Government medical officers or otherwise. The funds for this investigation will be provided by the West African Dependencies.

SPURIOUS FOAM.

WE called attention some time back to the fact that many beverages were made attractive by the addition of certain preparations producing a foam upon the surface of the fluid. The most frequently used substance for this purpose, we pointed out, was a preparation known as soap bark—quillaia saponaria—its property of producing a froth being due to the presence of the glucoside saponin. We entered two objections to the use of this substance in beverages. First, it is added to give to a fluid which is in reality flat, stale, and unprofitable, the appearance of healthy briskness. That is a deception which may succeed with uncritical palates in passing off an unworthy beer as sound. Secondly, although the quantity of saponin necessary for the purpose is small, yet it is equally without doubt a poisonous glucoside, and on general principles it is desirable to keep poisons out of liquids destined for human consumption. That saponin is not altogether an inert body is evident from the fact that its lather has been used to kill pediculi of the scalp, and further, though it appears to have been used as an expectorant in bronchitis, it is contra-indicated in inflammation of the intestines or stomach and in ulcerated conditions of the mucous membrane, while large quantities paralyse the respiratory vaso-motor centres. Our references to these facts in relation to the use of saponin in common beverages, such as mineral waters and beer, were generally discredited on the score that the quantity sufficient for giving a "head" was infinitesimal. In days, however, when the origin of many symptoms is obscure, it is well to have an eye to the possibilities of causation in the manifold resources of modern methods of manufacture. It is significant, at all events, that the use of saponin was some years ago prohibited in Austria, but a more recent step in the same direction, for doubtless very good reasons, has been taken by the Department of Health of the City of New York. In a bulletin issued for the week ending March 22nd last the use of soap bark in soda-water is prohibited. A preparation of soap bark (saponin), according to the bulletin, is used quite commonly in the country in the preparation of soda-water, in some kinds of "soft" drinks, and in fillings used by bakers. Soap bark contains, it is further stated, a poisonous substance, and the Health Department considers the use of a soap bark extract or of commercial saponin in foods or food preparations in any quantity whatever an injurious adulteration, and forthwith prohibits its use. We objected primarily to the false appearance of healthy effervescence which the addition of saponin gives to beverages because such an appearance implies a wholesome aerated condition of the fluid due to disengagement of carbonic acid gas. Next we raised an objection on account of the well-known irritant properties of saponin, though we were well aware that the quantity sufficing for the purpose was small. As will be seen, a complete endorsement of the views we expressed seven years ago occurs in the opening sentences contained in the weekly bulletin of the Department of Health referred to. They are as follows: "The average person who drinks soda-water, sarsaparilla, cream soda, root beer, and other so-called 'soft' drinks, probably imagines, if he gives any thought to the matter, that the creamy deep foam which tops his glass results naturally from the liberation of the carbonic acid gas therein contained. Such, unfortunately, is frequently not the case, the foam, especially when deep, white, and creamy, being sometimes produced artificially by the addition of a substance known as soap bark, various preparations of which are upon the market. 'Soap bark' is poisonous and markedly so, its toxic principle being sapotoxin. On this account the Department of Health has determined to prohibit its use, and henceforth if the cheaper grades of soda water, &c., do not present so attractive an appearance as heretofore, they will, at least, exercise no detrimental effect upon the community."

THE ARREST OF HÆMORRHAGE BY THE APPLICATION OF HORSE SERUM.

IN recent years horse serum has been injected hypodermically in the treatment of hæmorrhage due to diminished coagulability of the blood, such as occurs in hæmophilia, purpura, melæna neonatorum, and in operations in cases of long-continued icterus. A method which has been employed much less frequently is the local application of horse serum as a styptic. In the *Journal of the American Medical Association* of March 8th Dr. C. G. Levison has reported the two following cases. A man, aged 49 years, gave the history that he had suffered for several years from intermittent epistaxis which was cured only by removal of the turbinal bones. There was a moderate degree of arteriosclerosis. He had been suffering for some time from irritability of the bladder. Cystoscopic examination revealed a cyst at the internal orifice of the urethra, which was cauterised. At the time of the operation there was no hæmorrhage, but on the following night the bladder became distended with clots, which were evacuated with difficulty. Bleeding persisted for a week and then became profuse. When Dr. Levison saw the patient he was very exsanguine, and the bladder reached to the umbilicus and was firm from the presence of clots. Cystotomy was performed, and the clots were removed. The cystic tumour had been burned away, and a small bleeding area had been left. This was cauterised with

the actual cautery, and the bladder was packed with iodoform gauze. But the hæmorrhage never ceased for seven days, despite the application of various astringents—namely, tincture of iron, alum, epinephrin, and antipyrin, and the injection of horse serum. The abdominal wound bled as persistently as the area in the bladder. There was continuous oozing of bright red blood, and the patient's condition was growing exceedingly grave. A flask of horse serum was poured into the bladder. Almost at once the hæmorrhage ceased, and it did not recur. In the second case the patient was a woman, aged 45 years, who had suffered for three months from persistent but not intense jaundice. She had an enlarged gall-bladder. The coagulation time of the blood was eight minutes. Carcinoma involving the biliary passages was diagnosed. The gall-bladder was exposed, and about 8 ounces of dark green bile, of the consistence of tar, were removed. Cholecystenterostomy was about to be performed when the gall-bladder began to bleed. Nothing had been done to cause this except the introduction of a dull spoon, as the finger could not reach to the bottom of the gall-bladder. Bleeding became excessive, and was not controlled even when five yards of iodoform gauze had been packed into the gall-bladder. The hæmorrhage became alarming. 20 c.c. of horse serum were injected hypodermically without result. Then a flask of horse serum was poured into the gall-bladder. Coagulation immediately occurred and the hæmorrhage ceased. The gall-bladder was re-packed and the bleeding did not recur.

MEDICAL EDUCATION IN CARDIFF.

THE medical school at Cardiff—the only medical school in Wales—is now within sight of completion, and the question of clinical instruction to the students is therefore one of immediate interest. The obvious and natural place in which this should be given is King Edward VII.'s Hospital, the modern institution of over 200 beds which has lately arisen out of what was the Cardiff Infirmary, and arrangements have accordingly been made with this end in view. The *personnel* of the visiting staff of this hospital thus becomes a matter of the highest importance, since the future of the Cardiff Medical School will largely depend on the quality of the clinical teaching to be obtained in the wards and out-patient rooms of King Edward VII.'s Hospital. As it happens, owing to the death of Dr. Arthur E. Taylor, and the resignation, through the age-limit, of Dr. Herbert R. Vachell, both physicians to the hospital, two vacancies are now impending on the honorary staff. The board of management, we understand, are alive to the responsibility which thus falls upon them in filling these vacant posts, and they have expressed their intention of recruiting from among men of the highest qualifications, with a zealous regard to fitness irrespective of all other claims put forward by candidates or their supporters. It follows from this that the most appropriate candidates would be those who practise as consulting physicians, and who, if possible, have already had experience of teaching. We should be the last to suggest that a leading general practitioner is not often able to give clinical instruction as sound and useful to the student as it would be possible to give. The point is that time and proven ability to teach should be essential qualifications for appointments in hospitals attached to medical schools. It is the medical school which necessitates a specialist staff. The election committee at King Edward VII.'s Hospital, Cardiff, is commendably small, and its choice is final. If its claim to independence and impartiality is just there should be little difficulty in making suitable appointments. From now onwards those who are elected to the honorary staff of this institution will have in their charge the efficiency and good name, not only of the hospital, but also of the Cardiff Medical School.

A CRUSADE AGAINST VENEREAL INFECTION IN AUSTRALIA.

INCREASING knowledge carries with it increasing responsibility. Reticence in regard to the venereal diseases was acquiesced in, if not fostered by, the medical profession when the wide extent of the effects of these diseases was less known and the large proportion of innocent sufferers was unsuspected. But the day has gone by when these diseases can be regarded as necessarily evidence of personal immorality, and reticence must with increasing knowledge be replaced by a judicious widespread publicity in order that adequate measures may be prepared. It is very interesting in this connexion to read that steps have been taken in Australia in accordance with the wider modern views. In *Bedrock* for April Dr. James W. Barrett, C.M.G., describes how, in Victoria, a general discussion between pathologists, oculists, and specialists in children's diseases on the one hand, and many members of the general medical profession on the other, as to the extent of distribution of venereal diseases, led to the passing of a resolution at the Australasian Medical Congress in Melbourne in 1908, affirming the wide extent of the infection and urging on the Government the taking of preventive and remedial measures. The evidence on which this resolution was based consisted among other things of two sets of 100 necropsies, each made indiscriminately at the Melbourne Hospital on the bodies of persons who had died from varied causes. In each set of necropsies 30 per cent. showed pathologically syphilitic affections in the arteries and organs. Ophthalmologists added their testimony as to the frequent association of certain appearances with a history and other signs of syphilis, and in this they were supported by analogous conclusions on the part of those who had worked largely in connexion with diseases of children. The resolution of the Congress having been brought before the Victorian Government, the latter, on the advice of their medical officer, Dr. Burnett Ham, established an advisory committee of medical practitioners to investigate the subject. Investigation was pursued along the following lines. For 12 months syphilis was made compulsorily notifiable as to age, sex, and clinical conditions; a specimen of blood for the Wassermann test was submitted in all cases of residence within 12 miles of the Melbourne Post Office, no names, however, being mentioned. Not only obvious cases of syphilis, but conditions supposed to be indirectly due thereto were reported. By the end of the year out of 5000 cases reported and tested for syphilis 3167 (or 0·5 per cent. of the entire population) proved to be syphilitic. Again, during four months, at the Victorian Eye and Ear Hospital, every new case of disease of eye, ear, or throat, 550 cases in all, was submitted to the Wassermann test, with the result that of the eye cases 13 per cent., and of the ear and throat cases 15·8 per cent., were found to be syphilitic. At the Children's Hospital examination of all who showed signs of syphilis confirmed the position. The results of the inquiry, therefore, proved that the distribution of the disease was very wide, that the evidences on which diagnosis was based were valid, and that the resulting damage to the race was enormous. The Women's Hospital added further testimony to the effect that half their operative work was occasioned by gonorrhœa. A summary of the evidence was reported by Dr. Ham to the Government, which authorised publication in the press and appointed a permanent advisory committee to deal with the situation. The first difficulty in public education was seen to be the moral objection based on the mistaken premise

that sufferers from venereal disease are rightly served. Therefore it was shown that while the crafty and cold-blooded offenders were often able to avoid the consequences of their acts, it was the impulsive and simple-minded who more generally suffered; and, moreover, half the sufferers from gonorrhœa, and more than half of those from syphilis, were found to be not in any way morally responsible for their plight. The aid was sought of the National Council of Women, which passed a resolution offering coöperation with the Government in any reasonable steps. The press was also appealed to and consented to publish official and unexpurgated accounts of the steps taken, and to speak out plainly, avoiding euphemisms. The clergy also allowed the medical profession to give a temperate statement of the facts in their churches. The Government now furnished and equipped wards in the Alfred Hospital and the Women's Hospital for the treatment of any persons (other than prostitutes, who were otherwise provided for) suffering from these diseases in any of their contagious forms. They also arranged with the University of Melbourne for a free application of the Wassermann test to 2000 hospital cases annually, and at a low rate for all other cases. Finally, it is proposed to introduce a modified form of a New South Wales statute, which provides that any person sentenced to imprisonment for any cause and found to be suffering from a venereal disease in a contagious form may be detained until he can be released with safety to others. With these operations at work there is reason to hope that the elimination of venereal diseases is within the region of possibility. Dr. Barrett, as a result of his observations during a recent visit to Europe, considers syphilis far more common in Europe than in Australia, and while admitting that, in consequence probably of better treatment and hygiene, the graver manifestations are less common than formerly, holds that "submerged syphilis" is just as frequent and as deadly, since syphilitic nervous disease is not decreasing. He makes the suggestion that the examination by the Wassermann test of every patient admitted to the Brompton Hospital during a sufficient period would probably settle the relation of syphilis to tuberculous infection. Professor E. H. Starling, in a prefatory note to Dr. Barrett's article, urges that since in this country the State has now fully assumed responsibility for the national health, it is right that the public should be made acquainted with the measures taken in another part of our Empire, and asks if there is any reason why similar measures should not be adopted in this country.

THE COMMON HAIRBRUSH.

THE tendency of modern times is to make civilised people much more fastidious than were their ancestors. At one time at a meal the meat was served in a dish from which each diner took with his fingers what he required, and cut it on his own plate with his knife; at an early period the knife used was that which served for many other purposes, and it was never what is now called clean. The practice of feeding from a common dish obtains to-day among the Arabs, most courteous of hosts, if not so exuberant in their attentions as the dinner givers in some savage countries, where it is considered a polite attention for the entertainer to take a toothsome morsel from his own lips and to place it in the mouth of his guest. Customs such as these must have tended to spread disease. We have changed our manners in many respects, but there are still many habits of life in which greater care might be exercised. The risk of infection is materially diminished by taking a reasonable amount of care, and this is true not only of the more serious diseases, such as the infectious fevers, but also of the slighter affections such as ringworm. It is curious that even at the present day very little care is taken to prevent infection of the scalp. Until recently even hairdressers employed the same brush to all customers without making any attempt to disinfect it or even to cleanse it. Now it is true that many hairdressers do attempt to sterilise the brushes and other implements which they employ, but it is still customary with many persons to employ almost any hairbrush which may be available. In the dressing-rooms of clubs common hairbrushes are provided, and few hesitate to employ them. Now it is generally agreed that seborrhœa of the scalp is microbic in origin, and though the resisting power of the individual is an important factor in the production of the disease, infection also plays an active part. So that it cannot be doubted that the use of a hairbrush employed by others carries risk. It is not improbable that the increase of baldness in civilised communities is associated with the greater risks of infection of the scalp which exist.

TRAUMATIC APPENDICITIS.

CASES of appendicitis attributed to injury are rare; about 100 have been recorded. The condition has been discussed by many writers who have given varying estimates of its frequency, ranging from 0·8 to 8 per cent. This difference is not surprising as relations of cause and effect are difficult to establish in medicine. The problem is often highly complex, and even industrious writers are often wanting in the logical aptitude or training necessary for an accurate conception of the word "cause." Some writers accept only cases in which appendicitis appears after direct and violent injury to the abdomen; others include such factors as a hard day's work, horn-blowing, or defæcation. Only one writer, Sprengel, denies the existence of traumatic appendicitis, and holds that the combination with trauma is a mere coincidence. Others hold that trauma merely causes an exacerbation of a latent inflammation. Still others believe that trauma alone may cause appendicitis. All except Sprengel agree that injury may cause appendicitis in persons who previously showed no signs of the disease. In the *Progrès Médical* of Jan. 11th M. G. Daniel has reported the following case. A woman, aged 18 years, was admitted into hospital on August 20th, 1912. On July 11th she was kicked in the right iliac fossa by her husband. She was knocked down, but was able to get up without assistance. For ten minutes she felt severe pain over the whole abdomen. Then the pain gradually disappeared. She did not take to bed, and on the following day made several journeys, and on the day after that resumed work. Previously to the injury she was in good health and had not suffered from any digestive trouble. On the evening of July 18th, having felt nothing abnormal in the interval, she suffered from acute abdominal pain which became worse during the night and compelled her to remain in bed on the following day. The pains were then principally felt in the right iliac fossa. There were obstinate constipation and frequent vomiting. The temperature was 102·2° F. The symptoms increased, and on the 26th the temperature was 104·5°. It remained at this level until August 6th, when the symptoms began to regress, and on the 14th the temperature was normal. However, two days later the same symptoms began again and she was taken to hospital on the 20th. On admission the temperature was 103·5°, the pulse was 120, the facies was altered, and the respiration was rapid. The whole abdomen was painful, but the right iliac fossa was the most tender. On palpation there was marked "muscular defence," which, however, did not prevent a large induration from being felt. Vaginal examination was negative. Traumatic appendicitis was diagnosed. Under medical treatment the temperature fell to normal

and the symptoms improved. On Sept. 2nd an "interval operation" was performed. On the anterior surface of the cæcum was a subserous ecchymosis. In consequence of adhesions the appendix was discovered with difficulty. It was rolled up in spiral fashion and surrounded by peritoneal bands, especially at its extremity, which was adherent to the ileum. It was dissected out and amputated with the thermo-cautery. Recovery was uninterrupted. On opening the appendix neither foreign body nor calculus was found, only slight hæmorrhagic blotching was observed. At the free extremity the lesions were greatest; there was some pus, the wall was thinned, and the mucous membrane was violaceous. M. Daniel claims this case as clearly one of traumatic appendicitis in which there were no preceding lesions of the appendix. But, he asks, What is to be understood by traumatic appendicitis? He accepts the conclusions of Guinard which are as follows. 1. Cases of direct injury of the appendix, comparable to contusion of a segment of intestine, must be excluded from the category of traumatic appendicitis. Here the effect is not appendicitis but traumatic perforation, producing peritonitis. 2. Cases of appendicitis following an injury in a patient who has had previous attacks or even in one who is predisposed to infection in consequence—for example, of the presence in the appendix of a foreign body or a calculus—must also be excluded. 3. Only those cases in which the appendix was sound at the time of the injury and in which direct contusion can be eliminated should be termed traumatic appendicitis. Guinard considers that the injury causes the formation of little adhesions around the appendix which kink it, as in the case related above, and thus place it in danger of infection. In some cases the mechanism of a hæmatoma may be invoked, as has been done by Sonneburg. Contusion of the appendix may be differentiated from traumatic appendicitis by the fact that in the former the symptoms immediately follow the injury, while in the latter there is an interval.

THE TOXICITY OF THE SALICYLATES.

IN the *Journal of the American Medical Association* of March 29th Dr. Paul J. Hanzlik reports the results of an investigation into the toxicity of the salicylates based on an examination of the clinical records of about 400 cases treated at the Lakeside Hospital, Cleveland. The method of administration employed in this institution has been such as to facilitate this inquiry; the drug is given in hourly doses until symptoms of intoxication (headache, nausea, vomiting, deafness, tinnitus, &c.) make their appearance. The total amount given prior to these manifestations constitutes the toxic dose. Averages were calculated, not by the usual means, but by arranging the doses given to a group of cases in ascending order, and taking the middle dose of the series as the mean toxic dose for that group of cases. In 333 cases the drug was given in the form of the synthetic sodium salt; in 9 cases the natural sodium salt was given, in 9 methyl salicylate, in 7 aspirin (acetylsalicylic acid), and in 6 diplosal (salicylo-salicylic acid). In the case of the synthetic sodium salt the mean toxic dose for adult males was 180 grains, for females 140 grains; of the natural salt, 200 and 135 grains respectively; of the methyl salt, 120 minims alike for male and female; of aspirin, 165 and 120 grains respectively; of diplosal, 100 and 83 grains respectively. The difference between the toxic dose for males and for females corresponds approximately with the average difference in body weight. The toxic dose of the synthetic salicylate of soda ranged in males from 60 grains (in 16 cases) to 1300 grains (in 1 case, given as a single dose); in females from 20 to 300 grains. For most individuals it lay between 100 and 200 grains. No relation could be found between age and tolerance for salicylates between the ages of 16 and 75, neither was any racial susceptibility traceable. One very interesting point is brought out by an examination of the relation between the size of the toxic dose and the malady for which the drug was given; it appears from Dr Hanzlik's table that there was no greater tolerance for the synthetic salicylate in cases of rheumatic fever and subacute rheumatism than in other affections, and this seemed to be true of the other salicylates. Further, the responsiveness of the case to salicylate treatment had no effect in modifying the magnitude of the toxic dose. The figures tabulated bear out general experience in one important respect: it was in rheumatic fever that therapeutic success most often followed administration of the toxic dose of salicylate. The conclusion in respect to the influence of salicylates in albuminuria, though only provisional, is of interest; it is to the effect that albuminuria in rheumatic fever is to be ascribed to the disease and not to the action of the drug. Finally, idiosyncrasy to salicylates is shown not to depend on age, sex, race, or nature of disease; indeed, in a majority of those persons who appeared to exhibit an idiosyncrasy to the drug the toxic dose varied from time to time. In one respect this otherwise exhaustive investigation is disappointingly incomplete. Dr. Hanzlik states that in most cases the salicylate was combined with bicarbonate of soda, but he does not say whether this device had any effect in increasing tolerance to the drug. To British investigators this point is one of some importance, and it is to be hoped that Dr. Hanzlik will some day complete his valuable researches by deliberation upon this point also.

SMOKING IN THE THEATRE.

THE suggestion to permit smoking in the theatre as an inducement to increase the number of its patrons obviously raises some points of hygienic importance. It is easy enough, of course, to prove that if the suggestion were carried through the playgoing public would be submitted, whether they liked it or not, to an atmosphere of burning pipe, cigar, or cigarette, which cannot add to the healthiness of the surroundings. Courteous smokers will respect the reasons which induce many people to refrain from the indulgence—and in not a few cases there may be decided medical reasons included—while it is certain that it does no harm to anybody to give up smoking at any time. Scientific evidence is hardly needed to show that to some extent the person breathing a smoke-tainted atmosphere is liable to the same evils as the person who is smoking, for the experience of a non-smoker who has spent an evening in the atmosphere of a smoking concert is often that he sustains a disturbance of health similar to that sometimes complained of by the excessive smoker. It is doubtful whether such discomforts arise from nicotine; they are more likely due to imperfect products of combustion, amongst which must be reckoned irritating empyreumatics and the decidedly poisonous gas carbon monoxide. It is certain that if the air of a theatre in which a large company of people were smoking were examined it would show a result very far from a standard of purity. The only concession that might be made would be to reserve certain parts of the theatre for smokers and to provide a special system of ventilation in those parts which would effectually prevent the smoke from annoying those who do not choose to smoke. If this is impracticable, then the prohibition of smoking in theatres seems to us to be reasonable. It will, of course, be urged that smoking is permitted in the theatre of varieties or music hall, and the public appear to appreciate the privilege. There are compensations, however, in regard to the theatre in which

smoking is not allowed, which a good many people very properly value—namely, the atmosphere is cleaner and clearer; the floors are not bestrewn with tobacco ash, fag ends of cigars and cigarettes, and dead matches; the annoyance caused by the lighting of matches during a darkened scene is happily avoided; and the fittings are free from tobacco reek. These considerations add not a little to the enjoyment of a play.

THE MATERNITY HOSPITALS AND THE INSURANCE ACT.

IT would surely seem time that some combined action was taken by the maternity hospitals in the United Kingdom in reference to the Insurance Act. On these institutions the duty devolves of training both midwives and students, and the fact that the General Medical Council and the English Midwives Board insist—and most wisely so—that both pupil midwives and medical students must present evidence, among other things, that they have had *each* personal charge of 20 cases of labour, makes it essential that nothing should interfere with the hospitals' power of providing such teaching material. Further, in large towns, it is to the maternity hospitals that the difficult cases among the poor (insured or not) will always be sent. But now that the Insurance Act makes the poverty of many women much less, the questions arise, Should the women or their societies be expected to pay the maternities for providing them with skilled nursing and treatment? and, if so, what scale should be adopted, and should it be the same or different for extern and intern cases? These are problems awaiting solution. It would seem that at present different methods are being adopted in different teaching centres, but the establishment of some system applicable to all maternity hospitals alike ought to be possible after consultation with panel doctors, Approved Societies, and the authorities, lay and medical, of the lying-in charities.

FOUR Gresham lectures on Drugs Old and New will be delivered on May 13th, 14th, 15th, and 16th by Dr. F. M. Sandwith, Gresham professor of physic, at the City of London School, Victoria Embankment, London, E.C. The lectures are free to the public, and will begin each evening at 6 o'clock.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—The festival dinner of this institution was held on April 16th at the Whitehall Rooms, Hotel Métropole, London. The president of the hospital, Lord Strathcona, was in the chair, and he was supported, among others, by H.S.H. Prince Alexander of Teck, Lord Justice Kennedy, the Dean of Canterbury, Sir David and Lady Ferrier, Sir Frederick and Lady Macmillan, and many members of the visiting staff. The toast of the evening, "Success to the National Hospital for the Paralysed and Epileptic," was proposed by the chairman, and was acknowledged by Sir Frederick Macmillan, chairman of the board of management, who pointed to the progress which had taken place in the past 11 years, and justified the policy of improving the equipment rather than increasing the number of beds. The health of the medical, surgical, and nursing staffs was proposed in an eloquent and discerning speech by Dr. Wace, Dean of Canterbury. Sir Victor Horsley, in reply, paid a great tribute to Lord Strathcona's benefactions to hospitals and to medical science. Modern advances in methods of diagnosis and the obscure nature of the diseases treated there produced a special strain on the finances of the National Hospital; but no medical staff ever had more support from its board than theirs had done during the past 11 years. The secretary, Mr. Godfrey Hamilton, then announced the sums collected that evening, which amounted to over £2300, and included £1000 from Lord Strathcona. Prince Alexander of Teck then proposed the health of the chairman, whom he described as a veteran in Imperial work and in the cause of charity, and Lord Strathcona briefly responded.

FREUD'S THEORY OF DREAMS.[1]

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(*Concluded from page 1118.*)

III.

BEFORE setting out Professor Freud's elaborate "Psychology of Dream Processes" as given in the concluding chapter of the "Traumdeutung," and using it as the basis of criticism of his theory from the point of view of modern psychology, it will be well for us to consider two rather obvious objections which, if valid, would stultify the theory from the very outset. In the first place it may be contended that the memory for dreams, which is our only source of knowledge of them, is notoriously fallacious. Not only is it fragmentary, showing complete forgetfulness of whole stretches of the dream-experience, but it falsifies those parts that are retained. If a person is asked to describe his dream at different periods after the actual dream-experience, the various accounts which he gives are found to be not only different, but even in many respects inconsistent with one another. He also feels very uncertain about the precise nature of the events described. Morton Prince regards this difficulty in remembering as merely a special instance of "amnesia for dissociated states of consciousness," and a proof that dream-experiences are nothing but such dissociated states brought about by the condition of sleep. But such an explanation can hardly be valid, since Freud and others have found that if they wake up from a dream in the course of the night, interpret it by their method, and then fall to sleep again, they are the next morning often unable to remember either the dream or its interpretation. Now the interpretation is not a "dissociated state," so that Morton Prince's explanation here falls to the ground. The true explanation in Freud's view is that the forgetting is due to the action of the "censor," which in such cases as these suppresses the memory, not only of the dream, but also of its interpretation. It is merely the continuation in the waking state of that process of distortion and secondary elaboration which we have seen to result from the activity of the censor throughout the dream-experience. And since the laws of these processes are known, the amnesia and falsification present no insuperable difficulty to analysis and interpretation. The fragments of the dream that remain in the memory are as a rule sufficient to give the clue to the underlying dream-thoughts when submitted to the technique of psycho-analysis. The feeling of uncertainty which the dreamer often has about the memory of his dream is also to be attributed to the action of the censor, and only by rigorously ignoring this feeling and treating all his memories as on the same level of reliability can he hope to overcome the resistance sufficiently to penetrate to the dream-meaning. Freud has often found, in the case of his hysterical patients, that a dream which the patient has apparently quite forgotten may suddenly rise to memory in the course of a psycho-analysis where a resistance connected with the patient's symptoms has at last been overcome, showing most convincingly that the amnesia for the dream must have been due to a similar, if not the same, resistance.

The second objection is aimed at the reliability of the method of psycho-analysis. It is contended that a chain of free associations starting from any particular portion of the dream may end anywhere, and that then, when another portion is submitted to the same treatment, the associations are no longer completely "free," since they are to some extent, however slightly, determined and constrained by the result of the previous association series. Consequently it is no wonder that in the final result the various chains of association are found all to converge to one and the same system of dream-thoughts.

To this we may reply, firstly, that the interconnexions discovered by this method between the manifest and the latent contents are far too complex and far too full of surprises, cross-connexions, and remarkable coincidences to be regarded as merely the products of the method itself. But, secondly, the method is not with complete accuracy called one of *free* association. All associations without exception are dominated by some interest or purpose, and when the

[1] A paper read before the Listerian Society at King's College Hospital on Jan. 21st, 1913.

subject's voluntary and conscious purposes are allowed to fall into abeyance in the non-critical attitude adopted in psycho-analysis, unconscious purposes take their place and guide the course of the ideas. It is because of this fact that psycho-analysis is able to give us an insight into the nature and structure of the unconscious.

The other great method that has been found successful in the same task is that of hypnotism, but Freud's objections to hypnotism are that it is not sufficiently universal—only a small proportion of patients are amenable to hypnotism—and also that, although it overcomes some resistance and so widens the field of mental life open to observation, it accentuates the resistances at the border of this field and thus makes complete analysis of the unconscious in any direction impossible. As is well known, Professor Jung, of Zürich, has improved on Freud's method by employing lists of words, previously selected and arranged, and calling them out to the subject. The subject is told to reply to each as quickly as possible with the first word that comes into his mind. The times taken in replying—the association-times as they are called—are measured in fifths of a second by means of a stop-watch, and are as valuable as the associations themselves in revealing the workings of the unconscious. Those words which strike on an unconscious emotional "complex" or system of ideas give prolonged association-times—in hysterical patients as long as six or seven seconds instead of the normal one-and-a-fifth seconds. Sometimes the subject is quite unable to give any associated word. Such failure or difficulty in responding reveal the resistances to which the ideas in the unconscious are exposed. The ideas themselves can only rise to consciousness when these resistances have been completely overcome. A combination of the original more natural method and that of Jung is probably the best for the dream analysis of normal persons. Certain refinements on Jung's technique are possible, which it is unnecessary for us to consider here.

Freud has attempted to give a theoretical explanation of dream-processes, which, he thinks, is identical with showing their relations to the better-known processes of waking consciousness. Considering the structure of the mind on the model of a reflex apparatus receiving sense-impressions at the one "end" and controlling the muscular activity of the body at the other, he postulates a number of psychical systems or "*instances*" arranged in definite order—occupying relatively fixed "psychical localities"—between these two limits. The excitation corresponding to mental activity passes, in ordinary cases, from the sensory to the motor end—i.e., in the progredient direction. Immediately adjacent to the motor end is the fore-conscious, to which the direct control of motility is limited. Behind this is the unconscious, separated from the fore-conscious by the censor "as by a screen"; behind this, again, a series of memory systems whose function it is to retain the after-effects of perception in different forms of interconnexion, the memory system immediately adjacent to the sensory end of the whole apparatus representing memory traces connected merely by associations of contiguity, others in front of this corresponding to the same traces related according to similarity, contrast, and other forms of association or logical connexion. Freud compares the apparatus to an optical instrument, such as a telescope or microscope, whose lenses would correspond to the subsidiary systems or "instances" above mentioned, and he takes care to emphasise the metaphorical nature of his description. The systems have no more real physical positions, one behind the other, than have the virtual images produced in certain circumstances by refraction of light through lenses, but their activities are related to one another according to a certain order, and the spatial metaphor is used simply to express this order. Now, whereas the normal processes of waking consciousness correspond, as above mentioned, to a progredient direction of the flow of excitation through the apparatus of the mind, many peculiarities of dream-consciousness are explained on the assumption that the course of the excitation is in part "regredient." Owing to the resistance of the censor and the lowered excitability of the fore-conscious, the excitation process corresponding to the sleepless working of the unconscious is reflected backwards, and reaches eventually the sensory end of the apparatus, traversing the various memory systems in doing so. As a result of this process of "regression" the dream not only acquires sensory or hallucinatory vividness, but its thought-relations become replaced by the most superficial forms of association—namely, those of contiguity and similarity. In this way the censor is not so much overcome as circumvented, the dream reaching consciousness at the sensory instead of at the motor end. In ordinary remembering and waking reverie a similar regression takes place, but it is incomplete and does not pass beyond the memory systems. What aids the dream process to actually reach the terminal perceptual system is partly the cessation of the progredient stream of excitation continually passing from the sensory to the motor side of the apparatus of the mind during waking life, but mainly the processes of *displacement* and *condensation* which we have already seen to be characteristic of dream-experience, and are peculiarities limited to the working of the unconscious. The psychical intensities of unconscious ideas are displaceable so that they can be accumulated upon one single idea or a relatively small number of ideas which thus acquire a sufficient intensity to attract the attention and so become conscious. But even these do not become conscious in their own form, but *attract*, or are attracted by, corresponding ideas from the fore-conscious, and endow these representatives or surrogates with their psychical intensity, thus enabling them to acquire hallucinatory vividness. Freud uses the same conception of "selective attraction" to explain the hallucinations of mental disease (other than those resulting from organic lesions), which he thinks are also due to the activity of the unconscious.

Speaking in less metaphorical language, the unconscious and the fore-conscious correspond to two fundamentally different modes of activity of the mind, of which the former is the more primitive; and it is because the unconscious can only wish and is incapable of any other form of mental activity that dreams have as their innermost meanings wish-fulfilments, and wish-fulfilments only. Freud's attempt to prove this thesis theoretically cannot be regarded as successful, and its lack of plausibility is my excuse for not quoting it in this paper. It may as a fact be true, but that is another matter. In my own view, fears, anxieties, and antipathies are equally primitive and equally prone to appear as the inner meaning of dreams. Nor can I verify from my own experience the view of some of Freud's followers that the wishes forming the dream-thoughts or latent contents of dreams are always of a sexual nature. Freud himself does not go so far as this, although he is inclined to think it probable. It should not be forgotten that he approached the problem of dreams from the side of abnormal psychology. Having been led by his studies on hysteria to a new theory of the nature and workings of the unconscious in this class of mental disorder, he then found, or thought he found, that the same theory could be made to include the dreams of normal persons, the dreams corresponding to the symptoms of the hysteric in being disguised fulfilments of repressed and therefore unconscious wishes or tendencies. And since he found that these wishes in the case of the hysteric were invariably of a sexual nature, dating from early childhood, he was tempted to the view that the wishes fulfilled in dreams are always infantile sexual wishes, and his disciples contend that the results of psycho-analysis applied to thousands of dreams bear out this theory. All that one can say in reply to this is that these investigators seem somewhat overpowered by the feeling of partisanship and have probably allowed their findings in many cases to be influenced by their expectations. Unbiassed psychologists, who have been trained to observe impartially the workings of their minds, are unable to support this extreme view. On the other hand, the critics of the Freudian school show an even more pronounced and irrational bias in the opposite direction, and little good can come from the discussion until a more impartial attitude is adopted by both sides. Much of the antagonism shown to Freud's sexual theory seems due to wilful ignorance or misunderstanding. There can be little doubt that sexuality, taken in the wide sense in which the Freudians use the term, plays a much more important part in the mental life of the individual and of the race than is generally recognised, and Freud has made a most valuable contribution to psychology in emphasising its significance and supporting his theory by such a wealth of concrete facts.

To return to our problem of dreams. Every dream fulfils at least *two* wishes, one originating in the unconscious,

the other in the fore-conscious. The fore-conscious wish is the wish to sleep, so that the dream is a compromise between this wish-fulfilment and those of the unconscious. Similarly in the case of hysteria Freud has observed that not only is an unconscious wish fulfilled in a disguised form by the hysterical symptoms, but that a wish originating in the fore-conscious, and generally of the nature of a self-punishment, is also fulfilled by the same symptoms; in fact, the symptoms are so chosen that they conform to both wish-fulfilments and constitute a compromise just as the dream does. Anxiety dreams and anxiety neuroses represent a breaking-down of this compromise and indicate the real purpose of the compromise—viz., to prevent the arousal of the painful feeling known as anxiety. Further discussion of this question belongs to pathological psychology and does not fall within the scope of our present inquiry.

The essence of Freud's dream-hypothesis from the purely theoretical point of view is his distinction of two kinds of mental mechanism, a primary and a secondary. It is the laws of the secondary mechanism that are given in ordinary textbooks of psychology. Those of the primary mechanism are in some respects very different. They include the processes of condensation, transference, "draining-off" of energy or intensity from one idea to another, and finally regression, as we have described it earlier in this paper. Freud claims to find the same processes active in cases of hysteria, and seems to regard his view of each of these two classes of facts as confirmatory of the other. All these processes, although psychical in nature, may occur independently of consciousness. Consciousness, in Freud's view, is merely a kind of sense-organ which does or does not perceive these psychical processes and products according to the distribution at the moment of the mental energy which we call attention. This account of consciousness will hardly satisfy psychologists, but many of them will be ready to admit the real existence of the unconscious in the Freudian sense, as well as of the fore-conscious. Many of Freud's difficulties are difficulties of terms rather than of facts. We may accept his facts and value them as new discoveries, while rejecting some of his terms and descriptions as misleading. The term "censor" corresponds to a verifiable fact, but the figurative use which Freud makes of it is not without danger. The censor is not an entity existing by itself and in its own right, nor is it really intelligible apart from all reference to consciousness, as Freud would have it to be; and when he speaks of a second censor between the fore-conscious and consciousness, one feels a still greater difficulty in knowing exactly what meaning to attach to the word. Yet the term is useful as emphasising the fact of repression, and for descriptive purposes is well-nigh indispensable.

One is continually tempted, while reading Freud, to correlate his distinction of a primary and secondary mental mechanism with the physiological distinction of the lower and upper motor circuits in the nervous system, especially as he limits the function of inhibition and the power of facing painful experience, and not merely turning away from it, to the secondary mechanism. But this would be an error, since the distinction corresponds to one within the upper motor circuit—indeed, within the physiological mechanism of the cerebrum itself. The primary process is a process of wish-phantasy which one can easily observe in the mental life of young children. It represents the stage of mental evolution when ideation, as distinct from merely perceptual experience, first became possible, and Freud's work has served to throw a great deal of light upon the nature and mode of working of this obscure and unduly neglected phase of mental life. No psychologist, unless he is hide-bound in tradition and prejudice, can fail to be attracted by the prospect of further psychological advance opened up by this work. Unless Freud's critics are ready to put themselves to the trouble of mastering his technique and giving the method of psycho-analysis an honest trial they do not deserve a hearing, and by their irrational attitude of blind opposition they bring into discredit psychology itself.

ROYAL INSTITUTION.—On Tuesday next (April 29th) at 3 o'clock Professor William Stirling begins a course of three lectures at the Royal Institution on "Recent Physiological Inquiries." Owing to the illness of Professor Bateson, his course of lectures on "The Heredity of Sex and some Cognate Problems" has been postponed.

THE FINAL REPORT OF THE ROYAL COMMISSION ON UNIVERSITY EDUCATION IN LONDON.

I.

IN the following short series of articles we propose to abstract the final report of the Commissioners on University Education in London, which was noticed on its appearance in a leading article in THE LANCET last week. But, although it is our intention to give the gist of the Commissioners' findings and recommendations, the report is so exhaustive and so closely written that our readers must understand that reference to the document itself is indispensable. The whole report is deeply interesting, and should be read by all who are interested in education and in the future of the University of London, while there are innumerable references in it, both direct and indirect, to the medical aspects of the problem.

The Royal Commission on University Education in London was appointed early in 1909

to inquire into the working of the present organisation of the University of London and into other facilities for advanced education (general, professional, and technical) existing in London for persons of either sex above secondary school age; to consider what provision should exist in the metropolis for university teaching and research; to make recommendations as to the relations which should in consequence subsist between the University of London, its incorporated Colleges, the Imperial College of Science and Technology, the other schools of the University, and the various public institutions and bodies concerned; and further, to recommend as to any changes of constitution and organisation which appear desirable, regard being had to the facilities for education and research which the metropolis should afford for specialist and advanced students in connexion with the provision existing in other parts of the United Kingdom and of His Majesty's Dominions beyond the Seas.

With their final report the Commissioners issue as an appendix of 300 pages the minutes of evidence given before them from February to December, 1912.[1] It will be remembered that on four previous occasions they issued minutes of evidence, and that in December, 1911, they made an interim report upon the question of a University site. Reference to these documents have been made from time to time in THE LANCET. The late Sir William Allchin's unfinished "Account of the Reconstruction of the University of London," undertaken by request of the Commission and very warmly praised in the final report, has also been noticed in our columns.[2]

The final report is preceded by a valuable analysis of its contents which occupies 24 closely printed pages, while the remainder of the Blue-book consists of 218 pages of foolscap.

Part I. opens with a concise statement of what the Commissioners conceived to be the duties imposed upon them by the terms of reference quoted above. In their opinion they had to ascertain: (I.) How the present organisation of the University of London works, and what provision the University of London makes at present for University education—general, professional, and technical. Upon this they were to determine by consideration and inquiry, (II.) What provision should exist in the metropolis for university teaching and research. In deciding this question they were to keep in mind, among other things, that London is the capital of the Empire, and that it may be right to provide there special facilities for education and research for specialist and advanced students in connexion with the provision existing in other parts of the Empire. (III.) When the facts referred to in I. had been ascertained, and the questions to be considered in II. had been determined, they were to make recommendations with regard to the following matters:—

What, if any, changes in the constitution and organisation of the University are necessary—
(*a*) To ensure that the University will work harmoniously and well.
(*b*) To enable the University to make, manage, and develop the provision for university education and research which in our opinion is necessary or desirable.

The two fundamental questions of the reference appeared to the Commissioners to be:—

How does the present organisation of the University of London work? And what provision ought to be made in London for university teaching and research?

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[1] Cd. 6718. Price 2s. 5d.
[2] THE LANCET, vol. i., 1911, p. 1363.

Their task they therefore shortly state as follows :—

To examine the existing provision for university education in London in the light of what we think ought to exist, and to make practical recommendations towards the realisation of the ideal.

With regard to the working of the present organisation of the University the Commissioners state :—

After the most careful inquiry we have been able to make into the whole organisation of the University, we have come to the conclusion that it is fundamentally defective, and as at present constituted is not calculated to promote the highest interests of university education in London; nor do we think it is capable of developing on the present lines into a university such as London ought to have.

The two main grounds of the defective organisation appear to us to be: (1) The present relations of the internal and external sides of the University. (2) The existing combination in the University of a large number of institutions differently related to it, and of different educational standard and aims—incorporated colleges; independent Schools of the University, both general, professional, and technological; and "mixed" institutions in which a limited number of the teachers are recognised for University purposes.

In addition to the difficulties which arise from these two main grounds, a number of defects in the present machinery of government have been brought to our notice which lead to difficulty and delay in carrying on the business of the University.

The want of money is not exactly a defect of organisation, but it is clear that some of the difficulties which arise from the second main ground we have mentioned might have been overcome, or at least greatly reduced, if the University had been in possession of substantial funds, and had wisely administered them with these ends in view.

A historical retrospect follows, in which it is shown how the original desire and intention to found a University for London upon the lines of Oxford and Cambridge Universities had to be diverted into the establishment of an examining and degree-giving body, more or less closely linked up with a number of heterogeneous teaching institutions. An interesting account is given of the vicissitudes of the University of London from its foundation to the present time. The Selborne and Gresham Commissions, appointed in 1888 and 1891 respectively, each came to the conclusion that the problem was how to coördinate the recognised teaching institutions of London under a central university. The petition of the Royal Colleges of Physicians of London and Surgeons of England to the Privy Council for a charter was referred to the Selborne Commission and rejected by them. The reason for this petition was the small number of university degrees in medicine obtained in proportion to the number of students and the opportunities for clinical teaching in London. The report of the Gresham Commission was followed by a period of controversy. Four and a half years later the Act of 1898 was passed, containing in a schedule the terms of the compromise arrived at.

The Gresham Commission recommended the Administrative County of London as the university area.

They thought it undesirable to limit by precise terms the conditions for the future admission of schools, but enumerated certain points which the University should consider in deciding their claims. They considered that the representation and influence of institutions as such in the government of the University should be minimised; that the influence of the University over the institutions should be increased; and that a more distinct and important position should be given to teachers in university organisation. The teachers were to be brought together into faculties, and, acting through an academic council elected by themselves from their own members, were to regulate the teaching, examinations, and discipline of the University, subject only to the statutes of the University and the ordinances of the Senate. They appear to have believed that if the teachers could in this way be brought to consider the subjects of their faculty from a university and not an institutional point of view, their attitude of mind would react upon the management of the institutions; and that wise financial administration of central funds, which would relieve the colleges and institutions of the necessity of competition, would tend to a real unity of the University. They recommended that a standing board should be appointed by the Senate to take charge of the interests of external students.

Dealing with the present relations of the internal and external sides of the University the report before us lays it down that the defects in the present organisation of the University, arising from the relations of the internal and external sides, are largely due to departures from the recommendations of the Gresham Commission, and originate in the provisions of the schedule to the Act of 1898. These provisions, as worked out in the Statutes, hamper, without restricting the executive powers of the Senate, by obliging it to invite and receive a report from one or both of two Standing Committees (i.e., the Academic Council and the Council for External Students) before making any decision affecting internal or external students. The following extracts are from the analysis of the report :—

The Academic Council and the Council for External Students having advisory powers only, and the executive authority being the Senate, neither council can get anything done without the consent of the other, unless it obtains the support of members of the Senate independent of both. The result is that questions on which the two councils are most divided are decided in the Senate by the votes of those who have been least able to consider the merits of the case. The machinery of government has caused difficulties, delays, and friction, so frequent and so serious as to have hampered progress and endangered the efficient working of the University. ..... The Academic and External Councils are dominated by incompatible ideals; the former believing that training in a university under university teachers is essential to university education; the latter that examinations based upon a syllabus afford "a guidance by test," which is a sufficient means of ascertaining that a candidate is entitled to a university degree. The claims of the external side form the real ground of the defective working of the University, so far as that is due to the present relations of the two sides. They claim the function of the old University of London—i.e., to confer degrees upon examination alone, and also the function of the promotion of research and the advancement of science and learning. The latter they propose should be carried out in a series of institutes under direct university control, grouped as far as possible round the University headquarters, and governed by special committees of the Senate. The distinction made by the external side between the local and imperial functions of a university is inadmissible, and its introduction would be injurious to the University. Every true university is not only local, but international.

The variety and complete financial independence of the teaching institutions connected with the University have prevented it from organising the higher education of London—a duty imposed upon it by statute. The University has no control over the teachers in its schools, no power to prevent duplication of departments in them, or to insist on the abandonment of work better done elsewhere. Neither can it prevent duplication of institutions—e.g., schools of engineering and medicine. Representation of the University on the governing body of an institution is not a guarantee of coöperation. The limitation of power of the Senate over the greater teaching institutions makes it impossible to bring them into true academical relations with the University. Financial control by the University is essential for the organisation of the teaching with which it is concerned. The difficulties arising from lack of control or influence over the schools are accentuated in institutions with "recognised" teachers. These institutions have no common aim in their university work; they do not differentiate university from other students, and there is no coördination between them. ..... The passing of a university examination is no evidence of university training, yet the training is what is required for the work of university graduates in after life. Some overlapping between different grades of institutions is inevitable and desirable, but it is dangerous, not only to the institutions, but to university education as a whole, to divert them from the work for which they were founded, and for which they are still needed. The regulations and syllabuses imposed upon internal students are so irksome that many are induced to take the external degree. The internal examinations are becoming largely external in character, owing to the necessity of providing tests suitable to institutions of different standards and aims.

Among other defects which the Commissioners find to be connected with the machinery of government of the University is the limited power given to the faculties by the statute. The Faculty of Medicine in particular, the report says, has become too large for effective work, even within the limited sphere assigned to it.

Part II. of the report forms a masterly essay on the aim and scope of modern university education. Its theme is the essentials of a university in a great centre of population. The nature of the provision required in London for university education and research is first discussed, as a necessary preliminary to constructive proposals. We only quote briefly again from the analysis :

Much of the defective organisation can be traced to confusion of thought about what is essential and non-essential in university education. This confusion of thought is largely due to the success of the University of London as an examining body, and to the encouragement it gave to systematic study when there was no properly organised system of secondary schools, and but imperfect provision of institutions capable of giving a higher education at small cost.

The essentials of university education are: first, that students should work in constant association with their fellow students, of their own and other faculties, and in close contact with their teachers; and that they should pursue their work when young and able to devote their whole time to it. Secondly, university work should differ in its nature and aim from that of a secondary school or a technical or a purely professional school. ..... In the university knowledge is pursued not only for the sake of information but always with reference to the attainment of truth. Thirdly, there should be close association of undergraduate and post-graduate work. Proposals which tend to their separation are injurious to both. A hard-and-fast line between the two is disadvantageous to the undergraduate, and diminishes the number who go on to advanced work. The most distinguished teachers must take their part in undergraduate teaching, and their spirit should dominate it all. Free intercourse with advanced students is inspiring and encouraging to undergraduates.

Special research institutes should not form part of the university organisation, but the establishment of a University Press, under full university control, is an essential function of the university.

Still dealing with general principles, the Commissioners touch on the subjects of university education for evening students, technological instruction, and working men's classes. Proceeding to the question of degrees and examinations the report contains matter of fundamental importance.

The granting of degrees is one of the chief characteristics of all universities, although it is not the real end of its existence. ..... The

object of going to a university is, or ought to be, to obtain a university education; and the degree ought to signify that this end has been attained. ..... Degrees, however, are not only certificates; they are also distinctions.

The examination test, which is the main test in English universities, is discussed from various points of view. External examinations associated with a wide or detailed syllabus of subjects are condemned as tending to uneducational methods of work. The Commissioners object to the whole system of external examination; they say it is based on want of faith in the teachers.

The present internal examinations are practically external owing to the number of institutions involved and the demands of the common syllabus. Degrees should not be awarded upon examination alone, but should, subject to proper safeguards, be practically the certificates given by the professors upon the whole record of the student's work. The University may continue to recognise work of a lower standard or not done under conditions which guarantee that the standard is equal to its own, until there is general understanding of the true meaning of a university education. But this recognition must not hamper the development of the teaching over which the university has complete control.

The report then proceeds to lay down the conditions necessary for the realisation of the foregoing ends. These, very briefly stated, are as follows: (1) A previous sound general education, giving the power of accurate expression and orderly thought; (2) homogeneity of university classes; (3) a university quarter where the constituent colleges and university departments are grouped together; (4) university hostels and societies, extending the influence of the university over its students; (5) a university professoriate, its own teachers appointed, paid, pensioned, and dismissed by the university; (6) professorial control of teaching and examination; and (7) complete financial control by the University of all the institutions within it.

The following extract from the analysis shows the scheme of government of the University proposed by the Commissioners:—

The supreme power of the University should be vested in a widely representative Court. The argument that a large and heterogeneous body would have no power is due to confusion of thought between legislative and executive functions. The Court would have final control over the statutes, the admission of institutions as constituent colleges, and the recognition of others as schools of the University.

The Senate should be so constituted as to be able to work out a carefully considered policy for the maintenance and development of university teaching. A large proportion of its members should be nominated by the Crown and not elected by other bodies, nor should it consist as to any large part of teachers. Sudden reversals of policy would be guarded against by the legislative control vested in the court, and by its power of bringing public opinion to bear upon University policy.

The Academic Council should be a body of University teachers to which the Senate might delegate some executive functions, and so constituted, from an advisory point of view, as to ensure that the Senate should have before it the opinion of the University professoriate upon any educational question affecting the university as a whole.

Much greater freedom of government should be provided for the reconstituted University, and to this end the statutes should be simple and few, leaving as many things as possible to be settled by regulations and by-laws of the University.

An organisation applying to the best institutions the principles governing the organisation of universities of the professorial type everywhere else would establish a standard to which institutions for the moment excluded from the University would ultimately be raised. For some institutions meantime a looser form of connexion must be provided and opportunity for graduation offered to the external student.

They sum up by adding that any reconstruction less fundamental than that proposed would be useless.

(To be continued.)

A COLLIERY GARDEN VILLAGE.—The first colliery garden village in South Wales is being formed in Gilfach Goch, a district which, though not actually in the Rhondda valleys, is almost adjoining and very closely associated with that locality. About 70 acres of land have been acquired upon which it is proposed to erect 1000 houses, each of which will have a garden containing some 300 superficial feet. Every house is to have a water-supply, and a hot-water supply will be in each house provided with a bath. The houses are to cost from £200 to £250 each, and will be erected in blocks. The estimated total cost of the undertaking is about £116,000, two-thirds of which will be borrowed from the Public Works Loan Commissioners. It is hoped that between £4000 and £5000 will be taken up in shares by prospective tenants, and £35,000 will be raised by loan stock. The collieries in the vicinity of the village are turning out 200,000 tons of coal yearly, and it is anticipated that with the sinking of other pits this amount may be multiplied four or five times over.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

St. Austell Rural District.—A good deal of public attention has been drawn to the sanitary condition of villages in Cornwall in recent years, and Dr. A. T. Nankivell's report on the district of St. Austell shows that many parts of it require more attention than they have hitherto received in such matters as water-supply, public scavenging, diminution of overcrowding, and improvement in the condition of working-class dwellings. The population of St. Austell is now estimated at over 33,000, and the conspicuous diminution in the number of inhabitants which set in with the decline of tin mining in 1880 has now been checked in consequence of the rise in prosperity of the china clay industry. The latter has led to a demand for house accommodation which is not met by local supply. The lack of houses tends to restrict the progress of the chief local trade while making it increasingly difficult for any sufficient action to be taken by the local authorities in the case of houses which ought to be closed as unfit for human habitation. The difficulties are increased by the immigration of casuals and tramps, of whom some 1300 pass through the workhouse in the year. Dr. Nankivell states that there is already a house famine and nowhere to put tenants who would be displaced by closing orders, and with a view to determining the places in which working-class dwellings are most needed he has made a special survey which should facilitate the task of the district council if it decides to use the Housing Acts to provide working-class houses in suitable situations. It appears from the report that building schemes could be undertaken with great advantage to the district, and probably with little pecuniary loss to the council. Shortage of working-class houses, and dwellings which are structurally unfit for human habitation, are met with conspicuously in the picturesque little town of Fowey, which also suffers from a deficient water-supply, incomplete sewerage, and unsatisfactory scavenging. Fowey is now to be constituted a borough, and so will be separated from the rest of the district, and in future have its own town council and sanitary officers. When it is considered that the population of the place is barely 2300, and that a penny rate produces only £43, it is doubtful whether the privilege of incorporation, however satisfactory on political or sentimental grounds, will work for better sanitary government. St. Austell district, like so many others in Cornwall, has no isolation hospital, and in this and in many other matters it is to be hoped that the local authority will give attention to the recommendations in this report, which obviously represents a great amount of labour. Dr. Nankivell must, however, allow us to quarrel with one sentence in it: "It has been possible to root out leprosy from this and other countries, and it is equally possible to banish tuberculosis." It may be pathologically correct to compare the leper and the consumptive, but in other respects we think the analogy is to be avoided.

Borough of Barnstaple.—Dr. Herbert C. Jonas's report on this old Devonshire town has several points of interest. Antiquity, which is often pleaded as an excuse for inaction in sanitary matters, hardly condones the dumping of town refuse on the outskirts of the borough in a place where it causes serious annoyance to the inhabitants and is constantly rooted over by pigs. In this, and in the provision of covered ashbins in place of filthy ashboxes in the town, there is room for considerable improvement. An inspection of the water-supply early last year led to the discovery of several dead ends to water mains which were provided with ball hydrants, which gave rise to danger of pollution of the supply by insuction, and it is satisfactory to read that these are being replaced by efficient valves. The River Taw is seriously polluted by sewage, the whole of the Barnstaple sewage being discharged untreated into the tidal portion of the stream. It is suggested that the present temporary isolation hospital should be enlarged, and that neighbouring districts should then share in its use. No hospital accommodation is available for small-pox cases, and Dr. Jonas points out that the population now growing up is largely unprotected by vaccination. In the last three and a half years practically 75 per cent. of the children born are unvaccinated. Great improvement is reported in the condition

of the districts with worst housing. Out of 216 dwellings inspected for the purposes of Section 17 of the Housing and Town Planning Act as many as 182 were considered to be in a state dangerous or injurious to health; in 112 of these the defects were remedied without the making of a closing order; in 21 the closing order was made, and in 8 the houses were demolished. Looking to the size of the town and to the conditions described by Dr. Jonas this seems to indicate very satisfactory progress, especially if the town council accompany it by the provision of suitable new working-class accommodation.

Borough of Reigate.—In a preface to his annual report Dr. Arthur E. Porter observes that "the modern tendency of public health administration appears to be to impose large administrative duties upon county councils, while leaving much of the spadework to be carried out by the constituent authorities." He considers it arguable whether this is a desirable arrangement in a county like Surrey, where the standard of public health administration is relatively high. In Reigate much useless clerical work is entailed, while the reciprocal benefit received is quite negligible. Dr. Porter goes on to criticise the Milk and Dairies Bill from this point of view, pointing out that in Surrey reference to the county headquarters is singularly inconvenient for the important districts situated in its eastern half. A hybrid arrangement whereby administrative and executive duties are shared by the larger and smaller authorities in his view cannot fail to be accompanied by overlapping, by regrettable delays, and unnecessary clerical and other work. Most of the houses in the district are supplied by the East Surrey Water Company, the population of whose statutory area now amounts to something like 90,000 persons. The supply, estimated at 25 to 30 gallons per head per diem in Reigate, is derived from deep wells bored about 125 feet into the chalk at Purley and Kenley, where it is softened to 4° Clark or thereabouts. So long as it maintains its high degree of purity it must be placed in the front rank of public water-supplies, but Dr. Porter points out that the chalk which forms the gathering ground is yearly becoming more and more built over, and that while the larger centres are drained to sewers, cesspools are attached to the more scattered groups of dwellings. He considers that the risk that at some future date fissures from which the company's wells derive their water may become polluted by domestic drainage should be guarded against. This is probably more necessary now that the company has obtained Parliamentary sanction to erect additional pumping machinery at their Purley station. In regard to "holiday children" from London Dr. Porter states that stringent measures have been adopted for some years to inspect the houses to which the children are sent, and that every year various societies in London are asked whether they propose to send children to the borough, and if so to furnish a list of the proposed lodgings. It has been found that since this system was adopted the number of holiday children that come to Reigate has been steadily reduced year by year.

REPORTS OF SCHOOL MEDICAL OFFICERS.

Durham County Council.—The work of this education district extends over 622,000 acres, with a population of 707,000 (estimated middle of 1910). There were 138,303 children on the roll attending at 397 schools with 694 departments. To do this work Dr. T. Eustace Hill, the school medical officer, has the help of eight assistants, three of whom are women, and of three school nurses. During 1911, 26,885 children were inspected, 25,302 being routine and 1583 special cases. The tenor of the reports from the different examinations is satisfactory. The percentage of girls with verminous heads was reduced from 48·7 per cent. to 37·4 per cent. and of boys from 1·2 per cent. to 0·69 per cent. Legal proceedings were sanctioned by the education committee against parents whose children were persistently verminous. In only 8 cases out of 30 were prosecutions instituted, 3 were withdrawn, 1 was dismissed on technical grounds, the parent getting a severe reprimand from the chairman of the bench, and in 4 cases convictions were obtained and fines imposed varying from 5*s.* to 20*s.*, plus costs. Scabies was unfortunately very prevalent during the year. Cases with ringworm of the head are allowed to attend school if wearing a washable linen cap. The medical officer calls special attention to the need for the provision of facilities for treatment of this ailment. And attention is also called to the need for reasonable encouragement to teachers to obtain a practical knowledge of hygiene, and further to the need for the provision of open-air classes or schools. Among special reports is one by Miss Cooper Hodgson, health visitor for the central district, who notes that chronic absentees, presumably away from school "to get fresh air," are usually found "hanging about in the house, untidy, depressed-looking little drudges nursing heavy babies, scrubbing floors, or helping with the family washing, or perhaps bread-baking." Dealing with 34 verminous families Miss Hodgson says "in only four cases can the parents be regarded as normal," and enumerates the "parental defects" in the 30. But the classification is too sweeping and too much a matter of individual opinion to be of scientific value. Its publication gives an impression of exactitude probably not deserved. A medical officer has been appointed especially to do refraction work, and has dealt with 366 cases from Sept. 25th, 1911, to Dec. 15th.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, and whose aggregate population at the middle of this year is estimated at 17,852,766 persons, 8960 births and 5420 deaths were registered during the week ended Saturday, April 19th. The annual rate of mortality in these towns, which had been 16·9, 15·6, and 15·2 per 1000 in the three preceding weeks, rose to 15·8 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these towns averaged 16·9 per 1000, against a corresponding rate of 17·5 in London. The death-rates last week in the several towns ranged from 4·6 in Ealing, 6·1 in Enfield, 6·6 in Ilford, 7·2 in Leyton, and 7·5 in Bournemouth, to 21·7 in Hastings, 21·8 in Stoke-on-Trent and in Carlisle, 21·9 in Stockton-on-Tees, 22·3 in Dewsbury, and 24·0 in Wolverhampton.

The 5420 deaths from all causes in the 96 towns were 225 in excess of the number in the previous week, and included 412 which were referred to the principal epidemic diseases, against numbers steadily declining from 464 to 394 in the five preceding weeks. Of these 412 deaths, 203 resulted from measles, 74 from whooping-cough, 65 from infantile diarrhœal diseases, 41 from diphtheria, 17 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual death-rate from these diseases last week was equal to 1·2 per 1000, and coincided with that recorded in each of the three preceding weeks. The deaths attributed to measles, which had been 208, 215, and 213 in the three preceding weeks, fell to 203 last week, and caused the highest annual death-rates of 1·9 in Willesden, 2·3 in Wigan, 2·6 in Bolton, 2·9 in Southend-on-Sea, 3·1 in St. Helens, 3·3 in Wolverhampton, 3·8 in West Bromwich, and 6·2 in Gloucester. The deaths referred to whooping-cough, which had steadily fallen from 83 to 50 in the five preceding weeks, rose to 74 last week, and included 26 in London and 3 each in Southend-on-Sea, in Birmingham, in Manchester, in Leeds, and in Merthyr Tydfil. The fatal cases of diarrhœa and enteritis (among infants under 2 years of age), which had been 71, 53, and 63 in the three preceding weeks, were 65 last week; 18 deaths occurred in London and 3 each in Stoke-on-Trent, in Wolverhampton, and in Middlesbrough. The deaths attributed to diphtheria, which had been 37, 35, and 36 in the three preceding weeks, rose to 41 last week, of which number 11 were registered in London and 3 each in Bradford, in Leeds, and in Stockton-on-Tees. The deaths referred to scarlet fever, which had been 19, 23, and 19 in the three preceding weeks, were 17 last week, and included 5 in Birmingham, 3 in London, and 2 in St. Helens. The fatal cases of enteric fever numbered 12 last week, against 8, 16, and 13 in the three preceding weeks.

The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had steadily declined from 2112 to 1357 in the 16 preceding weeks, had further fallen to 1334 on Saturday last; 215 new cases were admitted during the week, against 168, 167, and 148 in the three preceding weeks. These hospitals also contained on Saturday last 851 cases of

diphtheria, 754 of measles, 260 of whooping-cough, and 38 of enteric fever, but not one of small-pox. The 1424 deaths from all causes in London were 136 in excess of the number in the previous week, and were equal to an annual death-rate of 16·4 per 1000. The deaths referred to diseases of the respiratory system, which had steadily declined from 453 to 285 in the seven preceding weeks, rose to 329 last week, and were 84 above the number recorded in the corresponding week of last year. The deaths attributed to influenza numbered 28, against 45 in each of the two preceding weeks.

Of the 5420 deaths from all causes in the 96 towns, 171 resulted from different forms of violence, and 389 were the subject of coroners' inquests. The causes of 50, or 0·9 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Leeds, Bristol, Hull, Nottingham, Portsmouth, Salford, and in 55 other smaller towns. Of the 50 uncertified causes of death, 9 were registered in Birmingham, 7 in Liverpool, 4 in Stoke-on-Trent, 4 in Warrington, 3 in Bootle, 3 in St. Helens, and 3 in Sheffield.

HEALTH OF IRISH TOWNS.

In the 27 town districts of Ireland, with an aggregate population estimated at 1,199,180 persons at the middle of this year, 661 births and 481 deaths were registered during the week ended Saturday, April 19th. The annual rate of mortality in these towns, which had been 23·8, 23·3, and 22·5 per 1000 in the three preceding weeks, further declined to 20·9 per 1000 in the week under notice. During the 13 weeks of last quarter the mean annual death-rate in these Irish towns averaged 22·2 per 1000; in the 96 large English towns the corresponding rate did not exceed 16·9, while in the 16 Scotch towns it was equal to 19·1 per 1000. The annual death-rate last week was equal to 24·1 in Dublin (against 16·4 in London and 17·3 in Glasgow), 16·9 in Belfast, 22·4 in Cork, 12·7 in Londonderry, 29·8 in Limerick, and 11·4 in Waterford, while in the remaining 21 smaller towns the mean death-rate was 23·1 per 1000.

The 481 deaths from all causes in the 27 Irish towns were 36 fewer than the number in the preceding week, and included 42 which were referred to the principal epidemic diseases, against 39 and 37 in the two preceding weeks. Of these 42 deaths, 18 resulted from measles, 10 from infantile diarrhœal diseases, 6 from whooping-cough, 5 from diphtheria, and 3 from scarlet fever, but not one from enteric fever or from small-pox. These 42 deaths from the principal epidemic diseases were equal to an annual death-rate of 1·9, against 1·2 per 1000 in the 96 large English towns. The deaths attributed to measles, which had been 17, 14, and 14 in the three preceding weeks, rose to 18 last week, and included 10 in Wexford, 4 in Belfast, and 2 in Newry. The deaths of infants (under 2 years of age) referred to diarrhœa and enteritis, which had been 8, 11, and 10 in the three preceding weeks, were again 10 last week, of which number 8 were registered in Dublin. The fatal cases of whooping-cough, which had been 10, 5, and 3 in the three preceding weeks, slightly rose to 6 last week, and included 5 in Dublin. Of the 5 deaths attributed to diphtheria, which were equal to the average in the five preceding weeks, 2 occurred in Dublin, 2 in Londonderry, and 1 in Belfast. The 3 deaths referred to scarlet fever were recorded in Belfast. In addition to the above diseases a fatal case of typhus was registered in Dublin.

The deaths referred to diseases of the respiratory system, which had been 122, 142, and 109 in the three preceding weeks, further declined to 92 in the week under notice. Of the 481 deaths from all causes, 152, or 32 per cent., occurred in public institutions, and 8 resulted from different forms of violence. The causes of 22, or 4·6 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest; in the 96 large English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent.

VITAL STATISTICS OF LONDON DURING MARCH, 1913.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to an annual rate of 4·8 per 1000 of the population, estimated at 4,518,191 persons in the middle of the year; in the three preceding months the rates were 5·5, 5·3, and 4·8 per 1000 respectively. The lowest rates last month were recorded in Hammersmith, Chelsea, Hampstead, the City of London, and Shoreditch; and the highest rates in Southwark, Bermondsey, Battersea, Wandsworth, Camberwell, Deptford, and Lewisham. The prevalence of scarlet fever showed a considerable decline last month; this disease was proportionally most prevalent in Poplar, Bermondsey, Lambeth, Battersea, Camberwell, and Deptford. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 2088, 1717, and 1639 at the end of the three preceding months, had further declined to 1436 at the end of last month; the weekly admissions averaged 158, against 226, 196, and 189 in the three preceding months. Diphtheria was rather more prevalent than it had been in the preceding month; among the several metropolitan boroughs the greatest proportional prevalence of this disease was recorded in Paddington, St. Pancras, Stepney, Southwark, Bermondsey, Battersea, Wandsworth, Lewisham, and Woolwich. The Metropolitan Asylums Hospitals contained 901 diphtheria patients at the end of last month, against 959, 925, and 913 at the end of the three preceding months; the weekly admissions averaged 122, against 120, 122, and 118 in the three preceding months. The prevalence of enteric fever showed a slight decline last month; this disease was proportionally most prevalent in Paddington, the City of Westminster, St. Pancras, Bethnal Green, and Bermondsey. There were 42 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 37 and 44 at the end of the two preceding months; the weekly admissions averaged 7, against 7 and 6 in the two preceding months. Erysipelas was proportionally most prevalent in Chelsea, Finsbury, Bethnal Green, Stepney, Southwark, Camberwell, Deptford, and Greenwich. The 31 cases of puerperal fever notified during the month included 7 in Islington, 3 in the City of Westminster, 3 in Finsbury, 3 in Stepney, 2 in Fulham, and 2 in Lambeth. The 11 cases of cerebro-spinal meningitis included 5 in Stepney; and the 2 cases notified as poliomyelitis belonged respectively to the City of Westminster and Hampstead.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided; the death-rates from all causes are further corrected for variations in the sex- and age-constitution of the populations of the several boroughs. During the four weeks ending March 29th the deaths of 6105 London residents were registered, equal to an annual rate of 18·5 per 1000; in the three preceding months the rates had been 12·5, 17·8, and 19·0 per 1000 respectively. The death-rates last month ranged from 12·4 in Lewisham, 13·4 in Hampstead, 13·6 in the City of London, 14·3 in Wandsworth, 16·1 in Holborn, 16·2 in Greenwich, and 16·3 in Fulham, to 20·1 in Bethnal Green, 20·5 in St. Marylebone, 21·2 in Islington and in Finsbury, 21·4 in Bermondsey and in Deptford, 22·2 in Southwark, and 22·7 in Shoreditch. The 6105 deaths from all causes included 506 which were referred to the principal infectious diseases; of these, 284 resulted from measles, 8 from scarlet fever, 34 from diphtheria, 93 from whooping-cough, 1 from enteric fever, and 86 from diarrhœa and enteritis among children under two years of age. The lowest death-rates from these diseases were recorded last month in Hampstead, St. Pancras, Stoke Newington, Holborn, the City of London, and Lewisham; and the highest rates in Hammersmith, St. Marylebone, Bethnal Green, Southwark, Bermondsey, and Battersea. The 284 deaths from measles were slightly below the average number in the corresponding period of the five preceding years; this disease was proportionally most fatal last month in St. Marylebone, Bethnal Green, Southwark, Bermondsey, Lambeth, and Battersea. The 8 fatal cases of scarlet fever showed a decline of 19 from the corrected average number, and included 2 in the City of Westminster. The 34 deaths from diphtheria were 15

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MARCH, 1913.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1913.	NOTIFIED CASES OF INFECTIOUS DISEASE.												DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.									Deaths from all causes.	Death-rate per 1000 living.†
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	**4,518,191**	**1**	**718**	**575**	**—**	**34**	**1**	**31**	**278**	**11**	**2**	**1651**	**4·8**	**—**	**284**	**8**	**34**	**93**	**1**	**86**	**506**	**1·5**	**6105**	**18·5**
West Districts.																								
Paddington	142,210	—	15	37	—	2	—	—	4	—	—	58	5·3	—	3	—	—	5	—	2	10	0·9	186	18·3
Kensington	171,284	—	22	13	—	—	—	—	9	—	—	44	3·3	—	9	—	—	3	—	1	13	1·0	230	18·9
Hammersmith	123,745	—	17	10	—	—	—	—	—	—	—	27	2·8	—	6	—	1	10	—	3	20	2·1	179	19·7
Fulham	157,117	—	25	20	—	—	—	2	8	—	—	55	4·6	—	5	—	2	7	—	—	14	1·2	188	16·3
Chelsea	64,598	—	5	1	—	—	—	1	5	—	—	12	2·4	—	5	—	—	—	—	—	5	1·0	93	19·5
City of Westminster	154,810	—	27	12	—	3	—	3	8	—	—	53	4·5	—	6	2	1	2	—	2	13	1·1	211	20·0
North Districts.																								
St. Marylebone	114,532	—	17	12	—	1	—	—	4	—	—	34	3·9	—	13	—	2	1	—	2	18	2·0	169	20·5
Hampstead	86,346	—	11	5	—	—	—	1	—	—	—	17	2·6	—	3	—	—	—	—	1	4	0·6	79	13·4
St. Pancras	214,330	—	20	33	—	4	—	1	16	1	—	75	4·6	—	9	1	—	1	—	1	12	0·7	305	19·4
Islington	325,585	—	42	41	—	2	—	7	15	—	1	108	4·3	—	21	1	2	5	—	9	38	1·5	505	21·2
Stoke Newington	50,518	—	7	4	—	—	—	—	1	—	—	12	3·1	—	2	—	1	—	—	—	3	0·8	68	18·3
Hackney	223,353	—	21	16	—	—	—	1	12	—	—	50	2·9	—	12	1	1	3	—	4	21	1·2	299	18·2
Central Districts.																								
Holborn	46,949	—	4	5	—	—	—	—	3	—	—	12	3·3	—	1	—	1	1	—	—	3	0·8	54	16·1
Finsbury	84,679	—	3	5	—	1	—	3	9	—	1	22	3·4	—	4	—	—	3	—	4	11	1·7	133	21·2
City of London	17,916	—	2	1	—	—	—	—	—	—	—	3	2·2	—	—	1	—	—	—	—	1	0·7	17	13·6
East Districts.																								
Shoreditch	109,654	—	9	4	—	—	—	—	7	—	—	20	2·4	—	3	—	—	1	—	11	15	1·8	182	22·7
Bethnal Green	127,824	—	13	9	—	2	—	1	20	—	—	45	4·6	—	11	—	—	4	1	4	20	2·0	195	20·1
Stepney	275,300	—	37	48	—	—	—	3	22	5	—	115	5·4	—	12	—	5	1	—	10	28	1·3	370	18·3
Poplar	160,913	—	36	13	—	1	—	—	9	1	—	60	4·9	—	10	—	1	5	—	2	18	1·5	235	19·6
South Districts.																								
Southwark	188,487	1	35	29	—	1	—	1	16	1	—	84	5·8	—	24	—	2	5	—	1	32	2·2	306	22·2
Bermondsey	124,739	—	30	21	—	4	—	1	6	1	—	63	6·6	—	20	—	1	6	—	5	32	3·3	200	21·4
Lambeth	297,139	—	75	31	—	4	1	2	13	—	—	126	5·5	—	26	—	2	6	—	7	41	1·8	384	17·3
Battersea	167,464	—	39	28	—	3	—	1	5	—	—	76	5·9	—	33	—	2	1	—	1	37	2·9	237	19·7
Wandsworth	330,395	—	61	58	—	2	—	1	22	1	—	145	5·7	—	18	1	1	4	—	5	29	1·1	344	14·3
Camberwell	261,805	—	55	31	—	1	—	1	26	1	—	115	5·7	—	15	—	1	10	—	7	33	1·6	335	17·3
Deptford	109,280	—	23	9	—	1	—	—	18	—	—	51	6·1	—	3	—	4	5	—	2	14	1·7	171	21·4
Greenwich	96,015	—	17	11	—	1	—	—	8	—	—	37	5·0	—	3	—	1	1	—	2	7	1·0	117	16·2
Lewisham	168,822	—	31	47	—	1	—	—	7	—	—	86	6·6	—	4	—	1	1	—	—	6	0·5	154	12·4
Woolwich	122,382	—	19	21	—	—	—	1	5	—	—	46	4·9	—	3	1	2	2	—	—	8	0·9	159	18·1
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

† The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

fewer than the corrected average number; this disease was proportionally most fatal in St. Marylebone, Stepney, Deptford, and Woolwich. The 93 fatal cases of whooping-cough were 53 below the corrected average number; the highest death-rates from this disease were recorded in Paddington, Hammersmith, Fulham, Finsbury, Bermondsey, Camberwell, and Deptford. Only 1 death from enteric fever was registered in London last month, the corrected average number being 10. The mortality from diarrhœa and enteritis among children under two years of age was proportionally greatest in Finsbury, Shoreditch, Stepney, Bethnal Green, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London last month from the principal infectious diseases, excluding diarrhœa, was 19·4 per cent. below the average.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Surgeon-General A. W. May has taken up duty in the Admiralty Medical Department preliminary to taking over the Director-Generalship of the Department on May 11th.

Surgeon-General A. J. J. Johnston has succeeded Surgeon-General May in the medical charge of the Naval Hospital, Chatham.

In accordance with the provisions of His late Majesty's Order in Council of August 11th, 1903, Surgeon John McCutcheon has been allowed to withdraw from His Majesty's Naval Service with a gratuity (dated April 13th, 1913).

The successful candidates at the April examination for the Naval Medical Services, whose names were announced in THE LANCET last week (p. 1124), have been entered as acting surgeons and appointed to the *Victory*, additional, for a course of instruction at the Naval Medical School, Royal Naval College, Greenwich, and at Haslar Hospital.

ROYAL ARMY MEDICAL CORPS.

Captain David S. Buist is seconded for service with the Egyptian army (dated Feb. 26th, 1913).

Surgeon-General L. E. Anderson has been appointed to the Administrative Staff of the forthcoming Irish Command Staff tour.

Colonel H. M. Sloggett has been selected for appointment as Assistant Director of Medical Services to the Belfast District. Colonel F. J. Jencken has been granted one month's leave of absence.

Brevet-Colonel Sir William B. Leishman has been appointed a member of the Advisory Medical and Sanitary Committee for Tropical Africa.

Lieutenant-Colonel J. D. Ferguson, D.S.O., has been selected for appointment to the Straits Settlements. Lieutenant-Colonel W. T. Mould has been granted three months' leave of absence. An exchange of positions on the roster for service abroad has been approved between Lieutenant-Colonel N. Manders, at the Curragh Camp, and Lieutenant-Colonel M. T. Yarr, of the London District, who will now proceed abroad during the coming trooping season. Lieutenant-Colonel F. W. Hardy has taken over charge of the Military Hospital at Allahabad Cantonment.

Major W. L. Bennett has been appointed to the Northern Command. Major H. A. Hinge has taken up duty in the Aldershot Command. Major P. S. O'Reilly has been granted eight months' leave of absence home from India. Major J. F. M. Kelly has arrived home for duty from Potchefstroom. Major G. Dansey-Browning has embarked for a tour of duty at Gibraltar. Major A. L. Scott has been transferred from Aldershot to Deepcut. Major J. Matthews has taken up duty at Secunderabad Cantonment. Major H. Herrick has arrived home on leave of absence from India. Major R. L. Argles has been transferred from Cahir to Tralee. Major E. F. Q. L'Estrange has been selected to command the Military Hospital at Cannanore. Major J. Poe has arrived home from South Africa. Major E. W. Siberry has been appointed to the London District. Major J. E. Brogden has been transferred to Malta from Gibraltar. Major W. P. Gwynn has been granted eight months' leave of absence home from Burma.

Captain A. G. Wells has been selected as Specialist in Operative Surgery to the Third (Lahore) Division of the Northern Army. Captain A. C. Vidal has arrived home for duty from South Africa. Captain A. Dawson has been appointed to the Irish Command. Captain T. E. Harty has been selected as Specialist in Dermatology and Venereal Diseases at the Military Hospital, York. Captain J. A. Clark has been selected for service with the Egyptian Army. Captain J. L. Wood has arrived home on leave of absence from Naini Tal. Captain H. Harding has taken up duty in the Eastern Command. Captain E. H. M. Moore has been transferred from the Military Hospital at Chatham to Shoeburyness. Captain G. De la Cour has been appointed to the Dublin District. The following Captains have been notified that they will be required for service abroad during the coming trooping season: L. Cotterill, J. McKenzie, A. H. Hayes, H. J. Crossley, R. Storrs, R. L. V. Foster, J. A. Turnbull, J. G. Bell, T. S. Coats, and J. C. G. Carmichael. Captain F. R. Laing has embarked for a tour of service in India. Captain M. B. H. Ritchie has been transferred from the Military Hospital at Campbellpore to Mhow Cantonment. Captain F. A. McCammon has been appointed to the Irish Command. Captain G. B. Churchill has taken up duty at the Military Hospital, Bulford Camp. Captain A. W. Bevis has taken up duty in the Belfast District. Captain A. H. Bond has been transferred from the Military Hospital at Fermoy to Queenstown for duty. Captain W. Davis has taken up duty at the Military Hospital, Meerut Cantonment. Captain R. F. O'T. Dickinson has arrived home on leave of absence from Bareilly Cantonment. Captain G. A. K. H. Reed has been selected as Specialist in Physical Training to the Aldershot Command. Captain H. Stewart, Captain C. T. Edmunds, and Captain E. J. Kavanagh have been appointed for duty on board the transport s.s. *Plassy*.

Lieutenant R. B. Phillips has taken up duty in the Cork District. Lieutenant J. S. Levack has embarked for a tour of service in India. Lieutenant B. H. H. Spence has been transferred from the Royal Herbert Hospital to the Royal Army Medical College. Lieutenant G. O. Chambers has left Lichfield for a tour of service in Egypt. Lieutenant B. Biggar has been transferred from London to Windsor. Lieutenant J. M. Elliott has taken up duty at the Military Hospital, Hilsea.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel E. Wilkinson has been granted leave of absence from India for one year and nine months. Lieutenant-Colonel G. A. W. Hall has been selected for the increased rate of pay under Article 7 of the Royal Warrant for Pay and Promotion. Lieutenant-Colonel F. J. Dewes has returned to duty in Burma. Lieutenant-Colonel B. H. Deare has taken up temporary duty as Officiating Principal of the Medical College at Calcutta. Lieutenant-Colonel D. T. Lane has been appointed Civil Surgeon at Ambala.

Major R. Bryson has been selected for appointment as Officiating Surgeon to the First District Madras and Superintendent of the Royapuram Medical School in Madras City. Major F. V. O. Belt, on relief by Lieutenant-Colonel F. J. Dewes, has been selected as Civil Surgeon at Meiktila Cantonment, Burma, in succession to Captain H. W. Farebrother, R.A.M.C. Major L. E. Gilbert has been selected for appointment by the Government of Burma. Major W. H. Kenrick has been granted leave of absence home from India. Major C. A. Sprawson has been selected for appointment as Professor of Obstetrics on the staff of King George's Medical College at Lucknow. Major Bhola Nauth has arrived in London on leave of absence. Major R. B. B. Foster has been selected as District Medical Officer at Malabar and Superintendent of the Lunatic Asylum at Calicut.

Captain L. Hirsch has been granted combined leave of absence home, with study leave, for one year and a half. Captain R. D. Saigol has been appointed Ophthalmic Surgeon to the General Hospital, Rangoon, during the absence of Captain E. A. Walker. Captain E. T. Harris has been transferred to Bassein. Captain J. Woods has arrived home on leave of absence. Captain S. C. Poe has been selected as Substantive Medical Officer to the 108th Regiment of Native Infantry, stationed at Bombay, in succession to Major W. H. Cox, D.S.O. Captain N. S. Simpson has been appointed to the Benares District as Plague Medical Officer, in succession to Captain J. S. O'Neill. Captain C. F. Marr has been granted an extension of his leave of absence.

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd Welsh Field Ambulance, Royal Army Medical Corps: John Sydney Rowlands to be Lieutenant (dated March 12th, 1913).

Attached to Units other than Medical Units.—Lieutenant Robert Lindsay to be Captain (dated Dec. 5th, 1912).

For attachment to Units other than Medical Units.—George Francis Rawdon Smith (late Company Sergeant-Major, Cheshire Field Company, Welsh Divisional Engineers, Royal Engineers) to be Lieutenant (dated Feb. 12th, 1913). Josiah Walker to be Lieutenant (dated March 18th, 1913).

FLYING PAY FOR ROYAL NAVY OFFICERS.

An Order in Council sanctions the following arrangements:—(1) Medical officers who obtain the certificate of the Royal Aero Club at their own expense to be eligible for the gratuity of £75, provided the permission of the Admiralty to undergo such training has first been obtained; (2) medical officers trained at the Central Flying School or at a naval flying school to be paid half the authorised rate of flying pay while under instruction; (3) after attaining such standard of proficiency as may be laid down, medical officers to be paid the authorised rate of flying pay: (*a*) for any days on which they may be required to fly on duty; (*b*) for days on which it may be necessary for them to carry out practice flights, not exceeding two per month.

HEALTH OF THE UNITED STATES ARMY IN 1911.

The report of the Surgeon-General of the United States army, Surgeon-General George H. Torney, dated August 20th, 1912, and bearing the figure 1912 on its title page, refers to the health and sanitary conditions of the army during the calendar year 1911, with a financial statement for the year ending June 30th, 1912. The mean strength of the troops was 72,748, for whom the ratio of admission to sick report was 935·74 per 1000, the constantly non-effective rate 33·28, the death-rate 4·77, and the rate of discharge for disability (invaliding) 13·85 per 1000; the admission and constantly non-effective ratios are the lowest hitherto recorded, and the death-rate lower than in any previous year except 1910, when it was 4·46 per 1000. During and since the Spanish-American war in 1898 exposure to tropical climates and the conditions consequent upon occupation of new territory caused considerable increase in sickness; this has been steadily diminishing with increase of knowledge of tropical diseases and preventive medicine and the establishment of more sanitary conditions of living in the recently acquired tropical possessions. The bulk of the troops (55,240) serve within the area of the United States; their admission-rate to hospital was 887·8 per 1000, while the ratio for "discharge on certificate of disability" and the death-rate were 15·0 and 4·72 respectively. In the Philippine Islands the garrison consisted of 12,454 men, for whom the respective ratios were 1218·24, 11·64, and 5·30. In Hawaii were stationed 2014 troops, with corresponding ratios of 1080·44, 13·9, and 2·98. In Alaska the garrison consisted of 1119 men, with an admission-rate of only 418·23 per 1000, and a discharge-rate of 4·47; the death-rate, however, was 6·26 per 1000. A table of the rates for death and discharge (i.e., invaliding) in the army of the United States compared with the armies of other Powers shows that the American death-rate in 1911 (4·72) was higher than that of any of the other armies noted—viz.: British (in the United Kingdom), 2·42; French, 3·75; Prussian, 1·78; Bavarian, 2·26; Spanish, 3·71; Russian, 4·07; Japanese, 3·57. The discharge, or invaliding, ratio (15), on the other hand, was lower than that of any other army except the British (11·07); the other ratios are: French (35·34), Prussian (41·1), Bavarian (49·3), Spanish (44·2), Russian (41·7), Japanese (26·94). The figures for foreign armies refer to 1909. For the British army those of 1910 are quoted. In 1911 the British ratios were 2·47 deaths and 9·78 invaliding discharges per 1000. Another interesting table shows the comparative prevalence of certain diseases in various armies. Typhoid fever caused 0·80 admissions per 1000 and 0·11 deaths per 1000 in the United States army. In the British army (at home and abroad, 1910) the admission ratio was 2·2; in the French army (1909) it was 2·95; in the Spanish, 3·24; in the Japanese, 5·47; and in the Russian 5·6 per 1000; while in the Austro-Hungarian army the ratio was only 1·3, in the Prussian 0·35, and in the Bavarian only 0·21 per 1000. The typhoid death-rate in the British army (at home and abroad, 1910) was 0·28 per 1000; in the French it was 0·47; Spanish, 0·82; Japanese, 0·55; Russian, 0·78; in the Austro-Hungarian, 0·20; Bavarian, 0·06; and Prussian, only 0·03 per 1000. Of the causes of death in the American army tuberculosis comes first with a ratio of 0·52 per 1000 strength. After this measles, 0·45; pneumonia, 0·32; organic heart disease, 0·29; typhoid fever, 0·11; tertiary syphilis, 0·11.

Typhoid fever has markedly decreased within recent years among the troops in the United States. There were 44 cases with six deaths in 1911, the ratios per 1000 being 0·76 and 0·10 respectively. The corresponding ratios for 1910 were 2·42 and 0·17, and for 1909 they were 3·03 and 0·28. There was no epidemic prevalence, the greatest number of cases at any one station being five at Port Logan, Colorado. In the Philippines there occurred 12 cases (0·88 per 1000) with no death. Antityphoid vaccination is now practised universally, the prophylactic being administered to all officers and men under 45, who have not had the disease or already received protection. It is considered that immunisation by this means is a thoroughly practical measure, and its protective value only second in importance to vaccination against small-pox. In the Philippine islands in 1910 there had been 31 cases among American troops with 2 deaths, and 13 among native troops with 1 death. In 1911 there were 12 among American and 12 among native troops with no deaths. A large number of the American troops had been immunised, but none of the natives. Hence probably the reason for the greatly reduced incidence among the former, while among the latter there was no obvious improvement. Typhoid prophylaxis is now also compulsory in the United States Navy.

Venereal diseases, unfortunately, show no decrease in 1911 compared with the previous year, in spite of the efforts made to instruct recruits, to prevent exposure to infection, and to prevent infection after exposure. The admission ratio was 185·13 (compared with 174·95 in 1910), and the constantly sick rate 10·14 (compared with 11·51). Gonorrhœa and chancroid have diminished, but the number of syphilis cases has increased, owing to the use of the Wassermann reaction, which has revealed the syphilitic nature of many cases not previously recognised. Prophylactic measures have been energetically carried out by means of the Slee tube (calomel ointment and solution of argyrol or protargol), or by means of a disinfectant ointment (calomel, phenol, and camphor) devised by Colonel L. M. Maus. In certain areas "physical examinations" were made of all unmarried enlisted men fortnightly, with the view of detecting venereal disease. The preventive measure most advocated by army surgeons is that known as the "hospital method": this consists in a thorough cleansing after exposure to infection, with injection of argyrol or protargol, carried out at hospital by one of the hospital staff. At Jefferson barracks it was found that only 15 infections occurred among 1675 prophylactic treatments, indicating a degree of protection greater than 99 per cent. The opinion both of commanding and of medical officers is almost unanimous in favour of punishment and stoppage of pay in venereal cases. The Secretary for War concurs in this opinion and recommends legislative action to carry it into effect. Congress has now enacted that absence from duty "on account of disease resulting from intemperate use of drugs or alcoholic liquors or other misconduct" shall entail loss of pay for the period of such absence. This stoppage of pay will, it is believed, do more than anything else to lessen the venereal rate in the army. Malarial fevers continue to decrease steadily in prevalence. In 1907 the admission rate was 31 per 1000 for white troops; in 1910 it was 17; in 1911, 15·47. In 1902 the ratio was as much as 96 per 1000. Fort Washington had the highest admission rate in 1911—viz., 333 per 1000. The post is surrounded by dense brush and timber, and continuance of mosquito infection is inevitable unless vigorous measures are taken to improve the condition of the surrounding country. Tuberculosis was slightly more prevalent in 1911 than in the previous year. There were 3·89 admissions per 1000 and 0·52 death, compared with ratios of 3·52 and 0·25 in 1910. The loss by discharge from this cause was, however, only 2·85, compared with 4·01 in the previous year. The

Vancouver barracks at Washington showed the high admission rate of 21·96, exceeded only by the stations of San Francisco (41·20) and Fort Bayard, New Mexico (64·00). At this latter station there is a special hospital for the treatment of this class of cases, which appears to account for the high admission rate of the post. For alcoholism the admissions were 20·31 per 1000, a material improvement on the preceding year, when they numbered 23·51, and a lower ratio than in any year (except two) since 1870.

In regard to sanitation, it is noted that to each divisional headquarters a medical officer has been asssigned as "sanitary inspector" to assist the chief surgeon. The institution of a fortnightly "physical inspection" of the troops is also an important measure. The inspection includes examination of the teeth, of the body and clothing, of the feet and footwear, and in addition the detection of venereal diseases. The service cap that has been in obligatory use is of such a pattern that the top of the crown fits directly on to the head: it is therefore obviously unfit for use in hot climates, and in consequence of medical recommendations the wearing of the campaign hat has now been authorised during very hot weather. As the result of inquiries and trials by a board, presided over by Major E. L. Munson of the Medical Corps, a new pattern of shoe (by which, we presume, is meant boot, in our phraseology) has been evolved, which is stated to be most satisfactory; hitherto the supply of shoes of each size and width has not been sufficient at the various army posts to enable company officers to fit their men properly; also, it appears that recruits have been furnished with only a single pair of boots on enlistment. This defect has now been remedied. An interesting observation is recorded by Major Ashford as to the occurrence of uncinariasis at Porto Rico. Fifty men were found to have ground itch as the result of a single practice march. Microscopic examination of fæces was made immediately, and ova of uncinaria were found in 30 cases; the remaining 20 men were examined every ten days thereafter until ova appeared, as happened in 18 cases. None of these men had exposed their bare feet to infestation, but all were undoubtedly affected by muddy water, which had percolated through their shoes and leggings. There would seem to be no preventive but the wearing of rubber boots, which would be impracticable.

The improvement in the health of the troops in the Philippine Islands continues; there was, however, an admission rate of 1218·24 per 1000. The average constantly sick rate was 43·15, slightly lower than in 1910, when it was 45·45. The chief causes of sickness were venereal diseases (305 admissions per 1000), dengue (115·9), and malarial fevers (75·56). As a result of change in dietary beriberi has practically disappeared from among the native troops. In 1908 the admission rate was 121·5 per 1000; in 1909 it was 103·9; in 1910 it dropped to 11·0, and in 1911 it was 0·57 per 1000; there were only 3 cases. The Tropical Diseases Board reported in 1911 that the neuritis-preventing principle of the rice extract must be contained in that portion of the solids which is dialysable; is soluble in water, in 95 per cent. alcohol, and in 0·3 per cent. hydrochloric acid; is easily decomposed by heat, and possesses a strong affinity for bone black. The same or a similar substance is contained in a decoction of white beans. In a report of January, 1912, the Board states that this principle is not phosphorus, is insoluble in ether, is absorbed by animal charcoal, and cannot be removed from the charcoal by maceration with water, absolute alcohol, or ether. Fifteen nursing infants suffering from the disease (as were their mothers) were treated with 20 drops of an extract of rice polishings every two hours while awake. "The results were truly marvellous. Improvement is immediate. The vomiting stops in 24 to 36 hours. The child, who has not passed any urine for several days, urinates five or six times freely. The œdema disappears in the course of a few days. ..... It can be said that this extract is a 'cure' in the true sense of the word, just as lime juice is a 'cure' for scurvy." It has been known for some time that the ultra-violet rays of the spectrum kill bacteria in a few seconds, and water sterilisers on this principle have been constructed by the Westinghouse Cooper Hewitt Company, of London and Paris. Recent experiments by the board show that these rays also destroy amœbæ, whether motile or encysted, and balantidia; and further tests of the practicability of using these radiations in water sterilisation are being carried out. Experiments on the fineness of mesh necessary to keep out mosquitoes showed that 16 mesh netting kept out all malaria carriers in the Philippines, but did not keep out stegomyia calopus, an extremely annoying species and a potential source of danger in case yellow fever should be introduced into the archipelago. Many other topics of interest are dealt with in this report, which is of great value to sanitarians and epidemiologists. It is most admirably printed.

ARCHIVES DE MÉDECINE ET PHARMACIE NAVALES.

In the January number is a long and interesting account of the explosion in the *Liberté* at Toulon on Sept. 25th, 1911, from the pen of Dr. Gazeau, apparently principal medical officer of that fleet, a deputy surgeon-general. On the day in question, at about 5.30 A.M., several muffled explosions were heard by the fleet in the fore part of the *Liberté*, and smoke was seen coming from the port fore casemate, soon replaced by flames. There was at first a panic on board as the wounded came groaning from below, but this ceased when the men were sent to fire stations, and some who had gone overboard swam back to the gangways and climbed inboard again. Boats were sent from other ships, but as the fire was not got under it was obvious there would be another explosion. The pumps of the *Liberté* were put out of action by the explosion, and the chief petty officers, who were struggling with the flooding valves, died suffocated at their posts. The second explosion came at 5.53. The upper works of the great ship opened and lifted, a column of smoke and fire shot up to the sky and a pall of smoke fell back and for a few moments hid the disaster from the fleet. Not that they had time to gaze merely; 83 of their own people had been killed and 164 wounded by flying scraps from the *Liberté*, or were drowned or struggling in the water by the ruin of their boats, and these had to be rescued. The wounded were looked after by the medical officers on guard (four are mentioned in a fleet of 20 ships), and were then sent to the Naval Hospital, St. Mandrier. The injuries of the men of the *Liberté* were remarkably uniform, mainly contusions of the head. Apparently, as the decks were burst up by the explosion, those standing on them were thrown violently against the deck above and so got the contusions. Then they ran the risk of suffocation or of drowning when thrown overboard in a state of shock. After fractures of the vault, the most frequent class of injury was burns, and then fractures of the limbs. Many suffered from multiple injuries. One man was found still alive in the wreck of the *Liberté;* to free him from the wreck it was necessary to amputate his foot which was jammed between two pieces of iron, but he died from fracture of the skull when on the way to hospital. The bodies were very carefully identified; those that could not be removed were injected with formalin and covered with a lime paste. The last to be removed, five months later, was then able to be identified. A quartermaster of the *Foudre*, with a small wound of the back of the right chest, died with purulent pleurisy, and at the necropsy a rivet was found on his liver with pieces of his shirt and jersey. No case of carbonic oxide poisoning was reported amongst the injured, nor any of intoxication by other products of combustion of nitro-powders.

THE MILITARY SURGEON.

In the *Military Surgeon* (Chicago) for March Captain L. C. Duncan gives an account of the work of Letterman, who is held in honour in the army of the United States, as Larrey in the French service. Letterman appeared on the scene in July, 1862, as McClellan's principal medical officer. Armies had become too large to be managed on any system developed from the regimental. The medical system was regimental and was discredited. The wounded from Bull Run in July, 1862, had remained, some of them, three days on the field without food or shelter. There was no medical organisation behind the regiment. Letterman saw where the mistake lay, took their ambulances away from the regiments and gave them to the ambulance corps, whose business it was to collect the wounded and take them to the field hospitals he also established. In December, at Fredericksburg, by the new system 10,000 wounded were taken off the field in the first night. Letterman's predecessor gave a most ridiculous but instructive opinion on regimental hospitals, which he considered just the thing unless the army were on the march or in battle. In other words, he preferred the organisation he knew to be only fit for peace time and did not prepare for the needs of

war as one would have expected. Captain A. G. Love, Medical Corps, U.S. Army, shows the rapid decrease in enteric fever in the army in India, which he ascribes to antityphoid inoculation. Theirs, in the United States army, is, he nevertheless states, more effective, as they use an agar, not a bouillon, culture, and inject patients thrice, not only twice. (It is interesting to note that Captain A. H. Hayes, R.A.M.C., discussing these same figures,[1] ascribes the fall in enteric fever rates (1) to antityphoid inoculation; (2) to sanitary administration; but (3), and above all, to the segregation of enteric convalescents at Naini Tal and Wellington.) An excellent article on armies, and the medical officers' work, by Lieutenant-Colonel W. B. Banister, Medical Corps, U.S. Army, will repay perusal.

THE MEDICAL MANŒUVRES IN INDIA.

The *Allahabad Pioneer* and other prominent Indian papers commenting on the recent medical manœuvres held at Rawal Pindi under the direction of Lieutenant-General Sir James Willcocks, commanding the Northern Army in India, draw attention to the great need of the army in India for trained and disciplined *dhoolie* bearers. In order to complete the bearer *personnel* of *one* division alone, some 600 hired coolies had to be collected from the Rawal Pindi bazaars; and, as might have been expected, they were in no way fitted either physically or otherwise for their duties. Some of them deserted at an early stage of the manœuvres, while when a deluge of rain fell on the third day of the operations the men told off to two Field Ambulances vanished altogether. The experience thus gained was a very valuable one, and it is obvious that proper measures will have to be taken by the military authorities to remedy this grave defect in organisation that has been disclosed. The case of this one division is typical of what would happen with the whole ten divisions of the Indian army, and we cannot run the risk of Indian Field Ambulances being stranded in the field for want of bearers to carry the sick and do other duties. The Army Bearer Corps will have to be expanded and put on the proper footing it had when Colonel D. Shearer initiated it under the orders of Lord Kitchener.

THE ORDER OF THE HOSPITAL OF ST. JOHN OF JERUSALEM.

Among the recipients of the Service Medal of the St. John Ambulance Brigade at a special meeting of the Chapter-General of the Order of the Hospital of St. John of Jerusalem, presided over on April 22nd by the Grand Prior, the Duke of Connaught, were District Surgeon E. B. Pooley, Corps-Surgeon and Superintendent J. Broomhead, and Corps-Surgeon R. Clegg.

Correspondence.

"Audi alteram partem."

THE GERMAN MEDICAL STUDY TOURS.

To the Editor of THE LANCET.

SIR,—The following communication from the German Central Committee, which organises tours abroad for purposes of medical study, has been addressed to me as President of the General Medical Council. I shall be obliged if you will give it publicity, and I express the hope that the medical authorities and the profession generally may be prepared to offer a welcome to our German brethren when in August they visit the localities mentioned.

I am, Sir, yours faithfully,

London, W., April 21st, 1913. DONALD MACALISTER.

[ENCLOSURE.]

"The German Central Committee for Medical Travel has the honour to inform you that the programme for this year's tour, in connexion with the meeting of the International Medical Congress in London, includes visits to England, Scotland, and Ireland. The following places will be visited: London, Scarborough, Leith, Edinburgh, Aberdeen, Stornoway, Oban, Glasgow, Belfast, Dublin, Jersey, and Guernsey.

"In intimating this visit, we would add that the German Medical Study Tours, which have now been in operation for 13 years, and in which over 3000 German and other practitioners have taken part, are intended to subserve purely scientific purposes.

"We request you, therefore, as President of the General Medical Council, to be good enough to further our objects by informing the profession of our intended visit, in order that in the various localities indicated we may have the privilege of access to, and inspection of, universities, hospitals, hygienic and philanthropic institutions, sanatoria, &c.

"We send a copy of our constitution and list of members, from which you will gather the composition of our committee.*

"With thanks in advance for your kind coöperation and with the expression of our distinguished regard,

"I am, very sincerely yours,

"Sanitätsrat Dr. A. OLIVEN."

* Presidents: Professor Dietrich (Berlin), Professor Glax (Abbazia), Professor His (Berlin), Professor von Strümpell (Leipzig). General secretary: Dr. A. Oliven, 134B Potsdamer Strasse, Berlin W. 9, to whom inquiries and invitations should be addressed.

[1] Journal of the Royal Sanitary Institute, March, 1913, p. 118.

THE ROYAL COMMISSION ON UNIVERSITY EDUCATION.

To the Editor of THE LANCET.

SIR,—In your very able leading article of to-day on the Report of the Royal Commission on the University of London you say: "They propose no concentration into two or three institutes of instruction in anatomy, physiology, and pharmacology, recognising the obvious advantages of training the medical student in these early professional subjects at places where he is in touch with clinical and pathological work."

I read the report rather differently, for Section 279, which deals with this part of the recommendations, definitely states that the "intermediate medical sciences should be in close connexion with the medical college," at which clinical instruction is given. Inasmuch as elsewhere the report contemplates the selection or foundation of three centres at which clinical instruction will be given, it seems obvious that there will also be three centres for the teaching of the intermediate subjects and we are expressly told in the same section that two of these centres "must for the time at least" be University College and King's College.

While it is true that the new scheme does not entail the separation of intermediate from clinical teaching, it does seem to revive in the most definite way the three-centre policy of concentration as it affects intermediate teaching, and reasserts the claims of University and King's Colleges, which, in the opinion of the late Sir Henry Butlin and many other supporters of the original scheme for concentration, really wrecked that scheme. Sir Henry Butlin very clearly stated the position in his evidence (Third Report, p. 276). When it became clear, in 1906, that University College and King's College were to be two of the three centres contemplated for the teaching of preliminary and intermediate subjects—

> 'several of the schools expressed great dissatisfaction that the Senate of the University, instead of establishing one centre (the institute) at a distance from all the schools of medicine, intended to foster and encourage three centres, two of which would be in the immediate neighbourhood of actually existing hospitals where the advanced subjects were taught (University always—King's for some years, certainly). It was felt that a school not authorised or supported by the University would have a very poor chance against the University schools. And there were not a few of the teachers who openly declared that it had never been the intention of the University to establish the institute at South Kensington, and that the appeal had only been a blind to prevent the schools from perceiving earlier that University College and King's College would be the real and only institutes actually supported by the Senate. In the opinion of those persons the schools had been 'betrayed.'"

Because the schools objected to being forced to give up to two competing rivals a number of their best students, they are accused by the Commission of "jealousy" towards King's and University Colleges. The charge reminds one of the ancient couplet—

> Le chat est un animal méchant,
> Quand on l'attaque il se défend.

The *méchanceté* of the schools is certainly not likely to decrease when they learn that the despoiling of their advanced students is to be added to the despoiling of their

intermediate students, and that their present representation on the Faculty of Medicine, by which they have been able in the past to defeat this particular encroachment, is to be taken away while being reserved for the collegiate teachers.

The report invites criticism on many other points. I select this one issue because your scrupulous fairness and impartiality lend authority to a statement which I do not think can be sustained by reference to the report. Intermediate teaching is to be sequestrated from all the schools except University College, King's College, and one problematic and unnamed third school, if this Commission has its way.

I am, Sir, yours faithfully,

London, W., April 19th, 1913. E. GRAHAM LITTLE.

THE MEDICAL PROFESSION IN INDIA.

To the Editor of THE LANCET.

SIR,—In THE LANCET of March 8th you have in a leading article commented on the relations between the Indian Medical Service and the non-official practitioners of India, and your conclusions are frankly dependent on the views of a Special Correspondent who is "intimately acquainted with the facts." If I can show you that his "facts" are often incorrect and his implications as frequently unfair, I trust you will feel at liberty to reconsider your views. I propose to deal with that part of the service in which I am working, not because I believe that the case there is any stronger than it is in other parts, but because I can give you facts regarding it at first hand. I trust that you will accord to my communication an equal publicity to that given to the remarks of your Special Correspondent.

He divides the ordinary run of I.M.S. officer in civil employ into district surgeons and civil surgeons, and is indeed at some pains to prevent their being confused. This is his first inaccuracy. The whole of British India is divided into districts, and each district contains in the vast majority of cases one I.M.S. officer only. In Madras he is called the "district medical and sanitary officer," and over the rest of India "the civil surgeon." These are merely different names for officers performing the same duties. There are in Rangoon two civil surgeons, who are, I believe, practically presidency surgeons, and there are a few cantonments in which an officer in military employ is given the title of civil surgeon; but apart from these I know of no instance where the civil surgeon is not in charge of a district. This error does not imply an intimate acquaintance with the facts.

The second matter on which no man "intimately acquainted with the facts" would make an error is in stating that the usual fee in India is Rs. 15. Certainly over the whole of the north of India it is invariably Rs. 16.

The third matter is an omission, and a serious one in face of the statement that the medical cost of a lengthy illness is not inconsiderable. I refer to the system taken advantage of by most Europeans and some Indians of paying a fixed yearly sum to the civil surgeon for the care of their families, whether well or ill, a form of insurance which is usual and which entails no hardship on anyone.

This leads naturally to the fourth mis-statement, made and repeated—namely, that families of Government servants are in certain cases entitled to the free services of the civil surgeon. Civil Government officers are not entitled to the services of any medical officers for their families, though military officers are; so that the affecting picture of the official paying in disgusted silence the reluctantly attending civil surgeon in order to induce the latter to give more willingly a service to which the former is entitled as a right for his family is entirely a work of imagination. This, however, does not make the implication any the less galling, even though it is accompanied by the obviously false imputation that the official in India is not sufficiently honest to see anything dishonourable in drawing a hugely inflated travelling allowance toll.

Fifthly, we come to another affecting picture—that of the subordinate who is not entitled to the services of the civil surgeon, but requires them, pays for them, and is silent. The sting is in the word "silent." It implies that there is something underhand about the proceeding. Of course there is not. Is the civilian doctor, who is, we are told, going to replace the service officer, going to treat for nothing any but those entitled to his services? Of course not. The position is precisely that which obtains in England: there is always the hospital for those who cannot pay, and where the civil surgeon may be consulted by the poorest. As a matter of fact, hospital abuse is becoming a very serious factor in India, and is a matter on which the independent medical practitioner of India has a very real grievance against hospital officers, although your correspondent gives no indication of the fact.

Sixthly, it is necessary to speak plainly on the matter of colour. Your correspondent imagines that the white population will not be averse to a stationary civilian surgeon. Obviously, if the independent profession is to be local, this officer will in nearly every case be an Indian. You may or may not sympathise with it, you may or may not understand it, but you cannot ignore the intense repugnance with which the European in India views the suggestion that his wife should be examined and conducted, let us say, through a confinement by an Indian. The matter introduces far-reaching political questions on which I have no intention of touching, but I have had to introduce it in order to give your correspondent's suggestion a flat contradiction.

Seventhly, we come to what is really the crux of the whole matter. I refer to the two statements which supplement and explain one another—namely, first, that the interests of the I.M.S. and of the independent local profession are opposed to one another; and, secondly, that "it must be understood that he (the civil surgeon) acts in most cases as a general practitioner in attendance on the patient and not merely in a consultative capacity to his subordinate." It is no use my giving merely a direct denial to this statement; it can only be controverted by facts, and there is no possible way of presenting these except by giving a personal experience. The station and district of which I am civil surgeon is acknowledged to be a "good" one. I divide my patients into two sets, European and Indian. To Europeans I frankly act as a general practitioner; and were I not a medical man I should strongly resent any suggestion that I and my family should be treated in any other way. My practice among Indians is, as practices outside the Presidency towns now go, a "good" one, but in spite of this fact I have seen, since I came here about 17 months ago, three Indian patients, and three only, to whom I have not been called as a consultant by a member of the independent local profession. All these cases had come in from the district urgently ill, and obtained my advice before calling in one of the general practitioners of the town. I did not see them again except in consultation. With the exception of these three visits and of the household of a Government ward, who has been placed by Government directly under the care of the civil surgeon, I have not seen an Indian here except in consultation. My practice among Indians depends entirely upon my being called in by members of the independent local profession, either at their own instance or at that of the patient or his friends, and I may add that any reduction of my usual fee is entirely at the discretion of the practitioner who calls me in. I absolutely deny any opposition in interest between myself and the members of the independent local profession. I absolutely deny that "their efforts at private practice are frustrated by the existence of the subsidised private practitioner of the Government" as represented by myself. On the contrary, I merely provide them with the consultative aid which they wish, and which both they and their patients have every right to get. To refuse to the sick and to their medical attendants consultative aid from one who is in nearly every district marked out by experience and qualification as the person best able to give it, would surely be an act of folly and one which would be strongly resented by the very people whom it is supposed to benefit. It would seem that your correspondent is disposed to look on the improvement of the local independent profession as an end, and not as merely a means, towards the betterment of the lot of the sick Indian. Would anyone in England seriously suggest that the public should be debarred from the advantage of the experience gained by the physicians and surgeons of our great British hospitals, unless they be hospital patients? You cannot justly suggest that conditions should be different in India.

If the facts I have given were singular they would have no value. I am only, however, one of many in precisely similar case, and I have merely brought in those personal matters as being the only way of showing that your correspondent

most decidedly is not "intimately acquainted with the facts." He has not been fair to the Service either in fact or in implication. If the I.M.S. officer is debarred from private practice his suggestion obviously is that you will get an equally good man as a consultant. If the matter is reasoned out it comes to this. Is it to be expected that you will get the same professional standard from a man who is to be dependent entirely on the fees now made by the civil surgeon, as from one who has both his pay and fees to live upon? One can scarcely expect to get in the future an article of equal value for from half to one-third of the cost now paid. As a matter of fact, it would not suit those who want later to replace the Indian Medical Service officer as civil surgeon to have the right of private practice now taken away from the civil surgeon.

Your Special Correspondent is not only inaccurate, but he is also ungallant, for he has entirely omitted all mention of the ladies. In this part of India the purdah system is dying, so far as doctors are concerned. The lady doctor is nearly always in direct competition with the male, except in the matter of obstetric and gynæcological work, and even here the man is coming in so rapidly that the woman's monopoly will, in my opinion, be broken by the time that the next generation has grown up. Possibly to his ignorance in other matters your Special Correspondent adds that of the fact that the suffragette has not yet invaded India, so that he has covered his rudeness to the ladies by taking refuge behind the purdah of anonymity.

I am, Sir, yours faithfully,

CLAYTON LANE, M.D. Lond.,
Major I.M.S., Civil Surgeon.

Berhampore, Bengal, April 2nd, 1913.

THE POSITION OF ASSISTANT MEDICAL OFFICERS IN ASYLUMS.

To the Editor of THE LANCET.

SIR,—Your anonymous correspondent who signs himself "Reform," writing in THE LANCET of April 12th on the above subject, states that "in nearly all asylums even a minor operation requiring an anæsthetic is performed by an outside surgeon specially employed." He adds that "in few asylum infirmaries is there any trained nursing as ordinarily understood," and he emphasises the disadvantages generally of asylum service owing to the "infrequent vacancies for superintendents." Whilst deprecating the tone of "Reform's" letter may I quote an extract from my report of last year relating to the Claybury Asylum to the committee of the London County Council responsible for its administration. It is as follows: "Of the medical officers who have served here, seven are medical superintendents of asylums in England and Wales (I might add, with salaries commencing at from £500 to £1000 a year, and a pension after so many years' service or attaining the age of 55 years), and of the other officers six are clerks or stewards, or both, eight are or were matrons of other institutions, five of them being in the London County Asylums. In addition, there are many of our staff enjoying high promotion in at least five other places at home and abroad." In addition to the above medical officers, there are several enjoying lucrative private practices, and tasting prosperity both at home and abroad. Although this is a satisfactory record it is not the best, as one other of the London Asylums boasts of even a greater success for its assistant medical officers. During last year, which is the twentieth year of the history of the asylum, the following operations were performed by the medical staff of the institution: (1) An operation for the relief of traumatic epilepsy by trephining the skull at the site of a scar over the left frontal area (the patient later was able to be transferred to his friends in Australia); (2) for the relief of strangulated hernia; (3) a similar operation upon a male patient aged 82 years; (4) for symptoms of internal strangulation; (5) for chronic periostitis of the femur; (6) for the excision of extensive tubercular glands in the neck; (7) for a troublesome double inguinal hernia with occasional symptoms of strangulation; (8) for a volvulus of the sigmoid flexure; (9) for cataract; (10) for inguinal colotomy to relieve a cancerous stricture which gave her eight months of life in comparative comfort; and (11) for internal strangulation caused by a band. Only one operation, and that for prostatectomy, was performed by an "outside" surgeon. In addition to the above, there were many minor incidents requiring either a local or a general anæsthetic. As to the "monotonous leisure," several of my younger colleagues have taken their M.B., M.D., and F.R.C.S. degrees or diplomas, and one obtained a gold medal at his M.D. thesis during this monotony.

The greatest enemy to any institution is "the idle man" whom the sage of Chelsea described as "the one monster in the world." I consider that a short experience of life in a large institution is the most useful service that any young practitioner can experience. It teaches him the usefulness of "give and take"—the man of compromise in the long run gets most of his own way—the necessity for method, the value of organisation, the great importance of moral treatment, the therapeutic value of various remedial agencies perseveringly administered. He can investigate morbid phenomena under conditions rarely met in "outside" practice, and he can engage in research connected with the body or the mind in a way that will not only interest him but will recompense him for his study and observation. If medical officers, as they do in my experience, devote themselves to the better training of their nurses, asylum infirmaries should become places where the best treatment and the best work can be seen, work which is destined to become more appreciated than has been the case in "Reform's" experience. I agree with the writer that the service should be improved in every way possible, and a paper read before the Medico-Psychological Association recently by Dr. J. B. Spence aims at efforts in this direction. In the meantime, I trust the best men will not be discouraged from entering asylum service by the pessimistic record of your anonymous contributor.

I am, Sir, yours faithfully,

ROBERT JONES, M.D. Lond.

Claybury Asylum, Woodford, Essex, April 15th, 1913.

To the Editor of THE LANCET.

SIR,—Dr. F. R. P. Taylor seems to have been fortunate in his lengthy experience of asylums, but many of his statements would appear to merit a somewhat closer examination. It is quite true that the assistant medical officers give lectures to the staff on their general duties, and a man's personality and abilities may do much. The female staff, however, are mainly recruited from the domestic servant class, and the male staff from agricultural labourers, ex-privates in the army, &c. Most excellent people, indeed, but often very deficient in the preliminary education so necessary if they are to benefit from instruction in nursing. The population of an asylum is, in the nature of things, largely a healthy one, and junior medical officers in the larger institutions, when not in charge of the infirmaries, see little serious illness in many of the sections. The infirmaries are organised for dealing with the sick, and it is there they go, and properly so from every point of view, except that of the man looking for experience that may be useful afterwards. I am sure Dr. Taylor has seen occasional operations performed by the staff. Such opportunities do not occur three times a year, and therefore what use are they as a training? Midwifery is practically non-existent, and infectious disease, with the exception, perhaps, in some places of colitis and an occasional phthisis case, is infrequently seen. Greatly to the credit of the management a serious accident is one of the rarest things imaginable. Is this a training for a general practitioner? Does the study of the mental peculiarities of his patients compensate him for the time spent away from the real work of general practice, and in spite of his access to a laboratory, if it is his intention not to continue lunacy work would he not be better employed either in the wards of a general hospital, Poor-law infirmary, or assisting a senior man in general practice? I can only repeat what I said before, that lunacy work has little reference indeed to general practice and is a very poor training for it.

I am, Sir, yours faithfully.

REFORM.

April 18th, 1913.

To the Editor of THE LANCET.

SIR,—I quite agree with the remarks made by "Reform." All assistant medical officers are not so fortunate as Dr. F. R. P. Taylor, who evidently has been encouraged to work. I myself was in one of the Metropolitan Asylums Board asylums for nine months. There were three assistant medical officers, and surgical work was discouraged. One

example is sufficient. A patient on the female side had a strangulated hernia, and the senior assistant medical officer and myself decided to operate. The medical superintendent was present. A general anæsthetic was administered, and I attempted to reduce by taxis; that failed. Everything was ready, and I asked the sister for a scalpel. The superintendent would not allow me to proceed further. He admitted that he could not operate himself, but thought I was too young, so to save the situation he called in an outside doctor. The doctor came in about seven hours, and after a "consultation" with the superintendent deemed it would be unwise to operate, as the patient was just dying. The patient lived for 36 hours after that.

Naturally the whole proceedings were revolting to me, and I did not remain longer in the service than I could help, neither did the superintendent encourage me to remain.

I am, Sir, yours faithfully,

April 19th, 1913. SYMPATHETIC.

MEDICAL OFFICERS OF HEALTH (SUPERANNUATION) BILL.

To the Editor of THE LANCET.

SIR,—From all parts of England and from the north of Scotland replies to my letter in THE LANCET of April 12th have reached me. Every one of them strongly urges the necessity of including in the Bill school medical inspectors and tuberculosis officers. Widespread discontent with the remuneration at present offered, especially to school medical inspectors, is almost invariably commented on in these replies. Those who have written have also brought the Bill to the notice of their Members of Parliament.

I have sent the appended letter to Sir Philip Magnus (presenter of the Bill), Sir Henry Craik, Mr. Lough, Mr. Charles Bathurst, Sir Henry Norman, Mr. Godfrey Locker-Lampson, and Mr. Glyn-Jones, supporters of the Bill:—

I have the honour to request your attention to, and consideration of, the following amendment, which, I hope you will see, has a strong claim for insertion in the Bill during the Committee stage.

Amendment:—

That the words "Medical Officers of Health" in the title and throughout the Bill include "School Medical Inspectors and Tuberculosis Officers."

Reasons:—

(1) Medical Inspectors and Tuberculosis Officers have salaries ranging on the average from a fourth to a half of that paid to Medical Officers of Health.
(2) Being whole-time officers they are precluded from augmenting their salaries by engaging in other work.
(3) About 3 out of every 4 Medical Inspectors and Tuberculosis Officers will not receive promotion from their present position because their numbers are so much greater than those of Medical Officers of Health.
(4) They form the junior branches of the Public Health Service.
(5) All the arguments adduced in the Bill in favour of Public Health Officers apply in the case of Medical Inspectors and Tuberculosis Officers.

A copy has also been sent to the Secretary of the Society of Medical Officers of Health, to the Secretary of the British Medical Association, and to Dr. Addison.

I am, Sir, yours faithfully,

ALEXANDER GRAHAM,

West Ham, E., April 21st, 1913. School Medical Inspector.

PROFESSOR BIEDL'S TREATISE ON "THE INTERNAL SECRETORY ORGANS."

To the Editor of THE LANCET.

SIR,—I should not have deemed it necessary to reply to Professor Biedl's letter in your issue of April 12th were it not that the whole transaction contains a lesson both to translators and publishers, of which they will do well to take heed.

The facts related in my letter which appeared in your issue of April 5th are not in dispute. Professor Biedl now supplies some further facts, from which your readers are apparently intended to infer that I undertook to do the translation, and failed to make good my undertaking. This is not the case. The English publishers asked me to translate the book into English. To this I replied that I had no time for such an undertaking, and referred them to Mrs. Linda Forster, who by her translation of Professor Max Braun's "Handbook of Practical Parasitology" (Bale and Sons, 1910) and other foreign scientific works had proved herself a careful and accurate translator with a lucid and agreeable English style. Mrs. Forster consented to undertake the responsibility on the condition that she might seek my opinion on doubtful points; and to this I agreed.

Then followed the happenings which I recounted in my last letter; Professor Biedl's corrections, sometimes helpful, but more often hypersensitive, of the translator's rendering of the original text, but also, and far more frequently, his painstaking Germanising of her English; the translator's protest; the Professor's insistence; and, finally, the crowning discipline of reconverting the professorial corrections into idiomatic phraseology. In such circumstances it is not surprising that some mistakes should creep in. But then translators are notoriously unreasonable people; they have no sense of propriety.

Nor, seemingly, are publishers much better, as witness the behaviour of the English publishers in the matter of the preface. They begged me, these misguided people, to write a foreword to the English edition—an honour which, as in humility bound, in all humility I declined. In the end, however, by dextrous flattery of my vanity, soothingly applied in person by a member of the firm, I became so much puffed up with pride that I went so far as to sacrifice their interests by yielding to his solicitations. And blushingly I wrote that foreword.

Professor Biedl is doubtless quite right in his conviction that a translation of the original preface by Professor Richard Paltauf would have been of more interest to the English reader. That those responsible for the sale of the English edition should have been so benighted as to hold a contrary opinion is certainly not my fault. But then publishers, like translators, are curiously obstinate and wrong-headed people. To a grievous lack of all sense of propriety they add a lamentable ignorance of their own business. It is very deplorable.

I am, Sir, yours faithfully,

Harley-street, W., April 18th, 1913. LEONARD WILLIAMS.

ABDOMINAL OBESITY AND ITS TREATMENT BY LOW-FREQUENCY OR LEDUC'S CURRENTS.

To the Editor of THE LANCET.

SIR,—In an article on the efficiency of the high-frequency currents combined with light baths in the treatment of obesity, which appeared in the *Annals of Electrobiology* in June, 1911, I remarked that obesity is more frequent in Egypt than elsewhere on account of climatic conditions and the sedentary and inactive lives of the upper classes. It is a very common spectacle in the streets of Cairo to see a number of men with extremely prominent abdomens, as large as, and even larger than, those of women in the later stages of childbearing, and for the most part the possessors of the bulk are proud of it, and if any remark is made on their appearance they answer that their stoutness is a sign of a strong constitution and flourishing health, and that nothing in the world would induce them to do anything to diminish it. But during the last few years, though very rarely, I have been consulted from time to time by corpulent patients concerning a treatment which would relieve their infirmity. I began first by applying vibratory massage, but was obliged to abandon it on account of the fatigue to which I exposed myself, as well as my assistant, before I had come to any conclusion as to its efficacy.

J. B., 45 years old, arthritis, neurotic, and for the past five years suffering from a dilated stomach, came to consult me on March 30th, 1911. The stomach could be traced below the umbilicus. The patient wanted to return to his home in Upper Egypt as quickly as possible, and could not follow a long treatment. I applied Leduc's currents with electrode cushions, as they are applied by Professor Doumer, at Lille. The length of each application was ten minutes, and the treatment was given daily except on Sundays. On the twelfth day, besides an amelioration of the stomach symptoms the patient had lost four kilogrammes, and his abdomen had so diminished in volume that his trousers were much too large.

Since then I have looked for the chance to put in practice in cases of obesity this method of treatment by current of feeble tension and perfect regularity, interrupted rhythmically and precisely. It seemed to me that it would be very efficacious.

My experiences, although not numerous enough to justify any deliberate deductions, are not less significant; it seems to me that they might encourage medical colleagues to follow the treatment and publish the results. Here are three further cases.

1. G. P., 28 years of age, corpulent, his abdominal girth being 1·10 metres (3 ft. 8 in.), came to consult me on August 1st, 1911. I applied low-frequency currents at an intensity of 40 to 60 milliamperes, and obtained energetic contractions of the abdominal muscles without any unpleasant symptoms. The treatment, which lasted 15 minutes, was given for the first six days consecutively, and afterwards repeated three times a week. On the twelfth application the abdominal girth had diminished by 8 centimetres.

2. A. H., 40 years old, corpulent, measuring 1·16 metres (3 ft. 10½ in.) in girth, began abdominal treatment by the Leduc's currents on August 8th, 1911. In ten succeeding days' treatment his abdominal perimeter diminished by 10 centimetres.

3. M. K., 55 years old, gouty, corpulent, weighing 105 kilos, with an abdominal perimeter of 1·2 metres (4 ft.), began treatment by Leduc's currents on August 11th, 1911. At first he had ten uninterrupted applications, and afterwards received treatment three times a week. On the twentieth application, which took place in the second week in September, 1911, his perimeter had been reduced by 12 centimetres.—I am, Sir, yours faithfully,

Cairo, Jan. 25th, 1913. Dr. S. C. DAMOGLOU.

VIVIPUNCTURE OR VIVISECTION?

To the Editor of THE LANCET.

SIR,—Considering that all forms of experimental operation upon the living animal are at present comprised under the term vivisection and that the public makes no distinction between division of the tissues and simple injections, I venture to ask whether it would not be advisable to restrict the use of the word vivisection to the grosser operations and to introduce a new word for the slighter—which indeed constitute about 99 per cent. of the whole. I suggest the word *vivipuncture*, which is formed on the same lines as acupuncture. It is true that the tables differentiate between the severe and the slight form, but the antivivisectionists do not, and it is important to hammer into the public mind that the vast majority of experiments subject the animal only to an operation which the human subject is always prepared to undergo himself, and indeed often demands.

I am, Sir, yours faithfully,

Ebury-street, S.W., April 16th, 1913. RALPH W. LEFTWICH.

ROYAL MEDICAL BENEVOLENT FUND.

To the Editor of THE LANCET.

SIR,—His Majesty the King was graciously pleased last year to confer on the Fund the title of "Royal." To celebrate this event it has been arranged to hold a dinner of those interested in the Fund and its Guild. H.R.H. Prince Arthur of Connaught, K.G., has kindly consented to preside. The dinner will take place on Wednesday next, April 30th, at the Hotel Cecil. We hope it will be in all respects a complete success.

It is not necessary to refer in detail to the work of the Fund, for this is fully set forth in the monthly reports of the cases relieved which you kindly publish in your journal. The average grants are at their best but small, yet, small as they are, they are in many cases all that stand between the recipient and destitution. The grants would be greater if the annual income from subscriptions and donations upon which they depend were increased. Except for the working expenses, which are a little over 5 per cent., all that is received in the year from donations and subscriptions is expended upon the objects of charity, legacies being invested for the purpose of providing annuities. The demands upon the Fund are heavy and constantly increasing. Every little helps, and even small subscriptions are acceptable, for if every member of the profession subscribed only a few shillings a year the resources of the Fund would be largely increased, and much more could be done to relieve the poverty and distress than is at present possible.

Though the Fund is mainly supported by members of the medical profession it has strong claims upon the general public also, for which the profession does so much with often a very inadequate return. Medical men should therefore take advantage of every opportunity which might offer to press the claims of the Fund upon their grateful and well-to-do patients, who are often only too glad to know of a deserving charity which they can safely support.

May we ask you to render another service to the Fund by publishing this letter.

We are, Sir, yours faithfully,

JOHN TWEEDY, President.
SAMUEL WEST, Hon. Treasurer.

Subscriptions and donations may be sent to the treasurer, Dr. Samuel West, 15, Wimpole-street, London, W.

11, Chandos-street, Cavendish-square, W., April 23rd, 1913.

QUIS CUSTODIET IPSOS CUSTODES?

To the Editor of THE LANCET.

SIR,—I read with interest Dr. J. Walter Carr's letter in your issue of April 12th. It would be interesting if he were to get his hospital colleague to make another blood examination under similar circumstances. I have shown[1] that in patients affected with pulmonary tuberculosis there is a remarkable variation in the number of leucocytes from day to day, and even from hour to hour.

A male patient, aged 42, under Dr. Hugh Walsham at the City of London Hospital for Diseases of the Chest, showed the following remarkable variation. On the two days in question the patient—who had tuberculosis of upper lobe of both lungs—was kept strictly in bed, and his temperature was taken each time a leucocyte count was done.

	Hour.	Temperature.	Leucocytes.	
9/12/10	10 A.M.	97·1°	18,000	Right ear.
	11 A.M.	98·1°	23,000	Left ear.
	12 noon	98·1°	19,000	Right ear.
	1 P.M.	98·1°	12,600	Left ear.
	2 P.M.	98·5°	27,600	Right ear.
	3 P.M.	98·5°	17,400	Left ear.
	4 P.M.	98·2°	26,600	Right ear.
	5 P.M.	98·5°	16,800	Left ear.
			15,900	Right ear.
	6 P.M.	98·5°	25,400	Right ear.
			24,300	Left ear.
	8 P.M.	98·0°	15,000	Left ear.
			13,800	Right ear
	11 P.M.	96·8°	11,200	Left ear.
			12,000	Right ear
10/12/10	8 A.M.	97·2°	11,600	
	10 A.M.	97·8°	12,200	
	11 A.M.	98·0°	14,500	
	12 noon	98·0°	13,000	
	1 P.M.	98·0°	18,500	
	2 P.M.	97·5°	15,200	
	4 P.M.	99·0°	19,000	

The blood was taken from the lobe of the ear, each ear being taken alternately, but at 4 P.M. on 9/12/10 the leucocyte swing seemed to indicate inflammation of the right ear, so at 5 P.M., 6 P.M., 8 P.M., and 11 P.M. counts were made from each ear, the one being a control for the other, yet the counts were the same from both ears, thus eliminating any fallacy due to inflammation.

I am, Sir, yours faithfully,

Watford, April 19th, 1913. THOMAS MARLIN, M.D.

A QUESTION IN LUNACY CERTIFICATION.

To the Editor of THE LANCET.

SIR,—Will you allow me to point out that your correspondent Dr. Robert Jones, in THE LANCET of March 29th, has mistaken my meaning; probably from careless reading he confuses the present and future tenses of the verb *to be*. I took no exception to his statement "that reception orders signed by a justice not specially appointed *will be* invalid unless signed within 14 days by a justice so appointed." I simply pointed out that they *are* valid for a time, and that patients can be admitted on them and kept for 14 days, but I did not suggest that they could be detained longer unless the order were approved and signed by a judicial authority. My desire was to point out to brother practitioners that private

[1] Journal of Clinical Research, May, 1912.

patients can be admitted on orders signed by any J.P., a knowledge of which fact may save them time and trouble.

In defence of magistrates who may not be aware that they are "specially appointed," I may say that in some counties, notably in Durham, all the county magistrates are *ipso facto* "specially appointed," and this being done *en bloc* they may not have their special responsibilities pointed out to them. I do not see that I have "failed to comprehend the interpretation of a valid order," or that I have "walked into a pitfall of the Lunacy Act."

I am, Sir, yours faithfully,

L. HARRIS-LISTON.

Middleton St. George, co. Durham, April 12th, 1913.

IODOFORM INJECTIONS IN PULMONARY TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—I have noticed the inconveniences referred to by Dr. Frank Crosbie and also minor ones which for obvious reasons I could not mention in a short letter. If petroleum is omitted from the injections they are not attended by paroxysms of coughing, except in those who are highly sensitive to ether.—I am, Sir, yours faithfully,

Bournemouth, April 19th, 1913. E. CURTIN.

NATIONAL MEDICAL UNION.

To the Editor of THE LANCET.

SIR,—A meeting of the executive committee of the National Medical Union was held at 5, John Dalton-street, Manchester, on April 16th. There was a large attendance, and an important discussion took place with regard to the present position under the National Insurance Act as it affects those practitioners who have not taken service. Numerous inquiries which have been made by doctors all over the country with regard to membership were reported. Many of these had written to say that they had retired from the panel, and others expressed their determination to do so at the first available opportunity. For example, 12 men from the Salford area alone have notified that, having removed their names from the lists, they wish to join the union. A Huddersfield member stated that he knew of two instances in his district of the non-acceptance of "sickness certificates" given by non-panel men. He was requested to lay full particulars before the committee at its next meeting, with a view to action being taken in the matter.

The honorary treasurer reported that the finances of the association were in a satisfactory condition. It was decided that a general meeting of the union should be held shortly, arrangements for which will be made at the next meeting of the committee. A subcommittee was appointed to deal with the organisation of the Union with a view to concerted action in the future.

I am, Sir, yours faithfully,

J. WEBSTER WATTS,
Secretary.

Manchester, April 22nd, 1913.

THE MEDICAL PROFESSION AND THE NATIONAL INSURANCE ACT.

To the Editor of THE LANCET.

SIR,—The following may be of interest to you. On April 1st a representative of the National Medical Guild had occasion to interview an official at the Insurance Commissioners' offices. The interview was arranged with regard to other matters, but in the course of conversation it transpired that the Commissioners were aware that certain Insurance Committees in the north of England were allowing "own arrangements" under the Insurance Act to be made with herbalists who had no sort of medical training. Allowing these arrangements means, of course, that the committees in question were prepared to pay for them.

On the same day a letter was sent from the National Medical Guild in which among other matters appeared the following sentence, viz.: "May I also state that I am informed that certain Insurance Committees in the north of England are permitting insured persons to make arrangements for medical treatment with herbalists and others not being medical men. May I ask whether this is legal, and if not, by whom and what action should be taken in the matter?" This letter was sent in order to obtain written verification of the fact.

On April 7th a reply was received from the Commissioners in which, again among other matter, appeared the sentence: "There is nothing in the National Insurance Act or the Regulations as to medical benefit which required that an insured person shall only be allowed to make his own arrangements for medical treatment and attendance on condition that these arrangements are made with a duly qualified medical practitioner."

On April 10th Sir J. D. Rees, M.P., asked a question in the House on the subject, which was as follows, viz.: "Whether, under any section or subsection of the National Insurance Act or Regulations relating to such Act, the Commissioners will recognise and sanction the medical treatment of insured persons by unqualified individuals, such as herbalists and Christian Scientists; and, if so, whether, seeing that herbalists and other unqualified persons cannot administer anæsthetics, perform operations, treat fractures, or give death certificates, he will say why this class of treatment is recognised under the Regulations?"

Mr. Robertson replied for Mr. Masterman as follows (this is taken from the official Parliamentary report), viz.: "There is no provision in the regulations dealing specially with those cases, but, subject to the conditions therein prescribed, it is open to an Insurance Committee to allow insured persons to make their own arrangements instead of receiving medical attendance and treatment from a duly qualified medical practitioner on the panel."

Sir J. D. Rees then asked: "Can the honourable gentleman answer the question as regards the death certificates? How can Christian Scientists give certificates?"

Mr. Robertson replied: "It will rest with the Insurance Committee, if they are satisfied."

Putting the facts very shortly, they are as follows: We learnt from the Commissioners' Office that arrangements with "quacks" were being made. In reply to a letter they said there was nothing to prevent them being made. In the House of Commons they said the same.

We are, Sir, yours faithfully,

THE NATIONAL MEDICAL GUILD.

Villiers-street, Strand, W.C., April 14th, 1913.

To the Editor of THE LANCET

SIR,—Are members of the medical profession at last beginning to appreciate the unsoundness of the principles which underlie the insurance business in which they have allowed themselves to become partners? The capitation fee is none other than a premium to cover such attendance as an insured person may demand, when freed of more cost to himself; not simply what he actually requires because of illness or injury. There is no ruling that he may not clean his boots or weed his garden whilst demanding medical attendance.

A definite premium, payable in advance (usually annually), to cover a specified risk, is an integral condition of insurance as it is generally understood. We are forced to meet a portion of our risk first, and then receive a fractional part of our premium. And in case this is not sufficiently unbusinesslike, various fragments of this premium are to be sacrificed (ordinary mileage, &c.), and we are to be deprived of the remainder of the fee, when Providence has seen fit to remove certain of our patients during the year, if it happens before the last quarter. I am, Sir, yours faithfully,

WM. SPETTIGUE, M.B. Edin.

Wellington, Somerset, April 22nd, 1913.

To the Editor of THE LANCET.

SIR,—Your Special Commissioner on Medical Practice under the Insurance Act, in THE LANCET of April 5th, p. 989, quotes a remark of a Carlisle panel doctor which supports the gloomy prognoses as to the probable degrading effect of the Act on the scientific practice of medicine. The aforesaid practitioner congratulates himself on the fact that under the Act "we can treat the disease and not the people." Could anything more perniciously retrograde be conceived? Moreover, the Commissioners, who did not see their way to grant to the medical profession freedom from lay control because they were expending public money, and so were

responsible for the way in which it was spent, now admit that this same public money may nevertheless be paid to herbalists and other quacks for "adequate medical treatment" such as the Act requires. Truly, beguiled by another Sinon, we have accepted *sacratâ arce* a new *monstrum infelix*, and even now—

> Inclusos utero Danaos et pinea furtim
> Laxat claustra Sinon.

I am, Sir, yours faithfully,

London, April 11th, 1913. PANTHUS.

THE GERMAN SURGICAL CONGRESS.

(FROM OUR BERLIN CORRESPONDENT.)

THE annual Congress of the German Surgical Association was held in Berlin from March 26th to 29th, Professor VON ANGERER presiding.

Tuberculosis of the Bones and Joints.

Professor GARRÉ (Bonn) gave a report of the definitive results of 2000 cases of tuberculosis of the joints treated by him during the past 19 years. He said that the choice between conservative treatment and the removal of the diseased parts by an operation depended partly on the seat of the affection and partly on the patient's age and social position. Tuberculous affections of the shoulder-joint were treated in the majority of cases by injections of iodoform, but in serious cases by resection according to Langenbeck's method. The cases treated conservatively became for the greater part ankylosed. The ultimate results of resection with regard to the restoration of function were better than might have been expected, so that the indications for resection should be extended. In the elbow-joint of children injection of iodoform and fixation were as a rule sufficient; in adults resection was preferable, the conservative treatment being less efficacious for such patients. Ankylosis followed resection in 50 per cent. of the cases. On the wrist-joint the results of conservative treatment were rather favourable. Resection should be avoided as much as possible, and when an operation became necessary only the affected parts should be removed. Coxitis ought generally to be treated according to a conservative method by plaster-of-Paris bandages, allowing the patient to walk, and by injections of iodoform into abscesses. In contractures a reduction must be tried, not forcibly, but by gradual extension. When the joint had then become painless a leather appliance was indicated; Hessing's splints had no special advantage. An attempt must be made to produce ankylosis. Resection should be reserved for cases in which no other procedure gave any ground for hope, because the results of resection were extremely unfavourable, one-third of the patients dying from tuberculosis, and only 50 per cent. of the remainder having a useful limb. In the knee-joint conservative treatment did not give a good result even in mild cases, for only 51 per cent. of the patients recovered, and most of them had an ankylosed joint; the results of resection were much better, as 92 per cent. recovered. In children resection was recommendable in serious cases, because contraction was apt to follow orthopædic treatment. In the ankle-joint resection was performed in serious cases only, as conservative treatment generally gave good results Abscesses were never opened by an incision but always by a puncture, and injections of iodoform were used. Radiotherapy had not been successful, because the rays were superficial in their action, and, moreover, exercised an injurious effect on the skin. Great attention must be given to general treatment, especially to life in the open air and to heliotherapy. Professor Garré made a reference to the brilliant results which had been obtained in Alpine climates, especially at Leysin, in Switzerland.

Dr. VULPIUS (Heidelberg) said that Alpine and seaside climates were not absolutely necessary for the successful treatment of tuberculosis, because fresh air and light could be obtained also elsewhere. He spoke in favour of special sanatoriums in which patients suffering from external tuberculosis could receive surgical treatment combined with physical and orthopædic remedial measures.

Dr. VON WRESZNIOWSKI (Czenstochau, in Russian Poland) explained his method of operation. He said that he made a wide opening so as to obtain access to the tuberculous focus; he then, after removal of all the affected parts of the bones and the soft tissues, plugged and fixed the joint. No sutures were inserted, so that at every change of dressing the wound could be thoroughly examined and any new foci of disease removed. The advantages of his operation were that the incisions healed up without the formation of fistulæ and that a useful limb remained; the drawback was the long duration of the treatment.

In the discussion Professor BIER (Berlin) recommended conservative treatment even in serious cases. He said that he avoided fixation, but used removable splints and passive congestion, and administered iodine internally in large doses. Under this treatment there was no formation of abscesses.

Professor DE QUERVAIN (Basle) said that he had seen excellent results in Alpine sanatoriums; the tuberculous lesions healed up without leaving fistulæ, and cicatrisation was rapid. In the Alpine sanatoriums operations were not often required.

Professor KÖNIG (Marburg) said that he had obtained good results by exposing the lesions to the rays of the mercury-quartz lamp, which might replace heliotherapy.

Professor WILMS (Heidelberg) said that Roentgen rays were efficacious, especially in affections of the upper extremity and of the glands. In patients giving a slight Pirquet reaction treatment by means of tuberculin was recommendable.

Dr. ISELIN (Basle) said that he had treated 367 patients by the Roentgen rays. Dry cases were less fit for this treatment than cases with profuse secretion. Spondylitis was a contra-indication, because deformity might arise from absorption, which was favoured by the X rays. Sometimes telangiectasia and ulceration developed even a year and a half after the Roentgen treatment.

Professor FRIEDRICH (Königsberg) warned surgeons against the too prolonged administration of iodine to children because of the damage which might be done to the ovaries and testes.

Duodenal Ulcer.

Professor KÜTTNER (Breslau) said that he had collected 800 cases from his own clinical material and from that of other surgeons. The frequency of duodenal as compared with gastric ulcer was in the ratio of 3 to 5, but according to some authorities the ratio was more correctly stated as 1 to 3. The symptom of pain developing some time after taking food was not characteristic of the disease, as it might happen also in adhesions, cholelithiasis, ulcer of the stomach, and cancer of the stomach, and might be absent in duodenal ulcer. The presence of relapsing hyperacidity and intermitting motor insufficiency was of importance, and so were the results shown by Roentgen photographs. Some points of difference between gastric and duodenal ulcer were that in the latter the danger to life was greater, and there was less prospect of spontaneous recovery than in the former; at the same time, however, a development into cancer was less frequent in duodenal than in gastric ulcer. Internal treatment was of temporary effect only. Resection was not indicated unless cancer was suspected. Gastro-enterostomy with occlusion of the pylorus was the best treatment. Perforated ulcers must be operated upon as early as possible, and the perforation must be closed by the omentum; gastro-enterostomy must be performed at once when the condition of the patient allowed—otherwise it ought to be delayed until the subsidence of the urgent symptoms. Profuse acute hæmorrhage must be treated conservatively, but chronic hæmorrhage by operation.

Dr. VON DEN VELDEN (Düsseldorf) recommended for profuse acute hæmorrhage intravenous injections of hypertonic solutions of common salt. In chronic hæmorrhage gelatine injections were preferable.

Professor VON BERGMANN (Altona) drew attention to the connexion of duodenal ulcer with gastric neurosis. In 30 cases of ascertained duodenal ulcer local or general neurotic stigmata could be found, from which an affection of the visceral nerves could be inferred. The pains in duodenal ulcer were for the most part caused by spasm of the pylorus.

Dr. HAUDEK (Vienna) gave a description of the appearances found by radiography in cases of duodenal ulcer, and said that a positive finding might furnish the diagnosis, but that the reliability of radiography was not as great as in gastric ulcer. A normal finding never allowed the exclusion

of the diagnosis of duodenal ulcer; if clinically an ulcer was assumed, a normal finding made the presence of duodenal ulcer more likely than that of a gastric ulcer.

Dr. GUNDERMANN (Giessen) gave an account of attempts which he had made to produce ulcers in animals. By ligaturing the left branch of the portal vein he could produce in dogs numerous gastric ulcers, and in certain cases also duodenal ulcers. He considered that they were caused by toxic substances which in the normal liver cell were retained and destroyed, but were discharged when the liver cells were damaged. Ulcer of the stomach and the duodenum was, in his opinion, due to some imperfection in the function of the liver.

Professor FRIEDRICH drew attention to the connexion of diseases of the pancreas with those of the duodenum, a connexion which was observed in 6 out of 14 cases. In 3 of these cases cancer could be ascertained.

Professor SCHMIDT (Halle) said that in every case of hyperacidity it was necessary to look for an ulcer; there was a so-called "vicious circle" established between gastric ulcer and neurosis, the ulcer, however, being the primary symptom. Duodenal ulcer might heal up under internal treatment; it had been said that a healed duodenal ulcer was never seen in post-mortem examinations, but this did not prove anything, because the cicatrices were very difficult to find in the mucosa.

Cellulitis Attended with Evolution of Gas.

Professor MÜLLER (Rostock) reported a case in which resection of the knee-joint was followed by rapidly spreading gangrene attended with evolution of gas in the tissues and urgent toxic symptoms. He performed insufflation of oxygen into the subcutaneous tissue under high pressure, so that the skin from the knee upwards was inflated like a cushion. This was done three times within five days; on the tenth day an abscess formed in the gluteal region, and other abscesses followed, so that incisions became necessary, but the progress of the cellulitis was arrested after three insufflations and the severe clinical symptoms abated.

Treatment by Rhythmic Passive Congestion.

Dr. THIES (Giessen) recommended in the treatment of acute inflammation the use of passive congestion, established not in a continuous manner, according to Professor Bier's system, but in a rhythmical manner, so that between two congestions lasting for one or two minutes an interval of the same duration was interposed, and so on for as long as required. He had constructed an apparatus by which the rhythm could be regulated. The advantage of his method compared with permanent passive congestion was that it could be applied without interruption for many days, and that neither troublesome œdema nor pyrexia was produced.

Operations for Obstinate Constipation.

Dr. SCHMIEDEN (Berlin) said that in chronic constipation those cases were proper subjects for operation in which the seat and the cause could be ascertained. He gave clinical details of a case of extreme atony and dilatation of the colon with congenital extension of the mesentery. By Roentgen photography fæces were shown to be retained for days in the transverse colon. To remedy this condition he made a new passage by establishing a double anastomosis between the transverse colon and the bottom and the top of the sigmoid flexure.

(To be continued.)

PRESENTATIONS TO MEDICAL MEN.—At the Constitutional Club, Newton Abbot (Devon), on April 5th, Mr. Richard Henry Grimbly, M.R.C.S. Eng., L.S.A., was presented with a silver salver and soup tureen, suitably inscribed, as a mark of respect and esteem, on his relinquishing, after ten years' service, the chairmanship of the Mid-Devon Constitutional Club.—The members of the Bere Alston (Devon) parish council have presented Mr. Rowland Hill, M.R.C.S. Eng., with a framed illuminated address in recognition of his valuable services as chairman of the council for the past 12 years.—The members of the St. Breward men's branch of the Red Cross Society recently presented Mr. William Robert Newton Cole, M.D., M.Ch. R.U.I., of St. Tudy (Cornwall), with a silver mounted blotter, as a mark of appreciation for his services as lecturer to the class.

MEDICAL PRACTICE UNDER THE INSURANCE ACT.

(BY OUR SPECIAL COMMISSIONER.)

(Continued from p. 1128.)

VII.—GLASGOW ACQUIESCING IN THE ACT.

The New Terms Readily Approved.

GLASGOW, like Carlisle, was from the first considered a danger spot by those who were eager to "fight the Act" at all costs. The British Medical Association was warned by some of its best informed representatives in that city, when the capitation fee was increased, that anything like general resistance at Glasgow would be impossible. Certainly the majority of the medical profession at Glasgow were opposed to the Bill in its original form and voted steadily against working the Act, but on Dec. 17th, when the increased pay was offered, there was a very rapid change of front. All the points brought forward by the British Medical Association may not have been, in their view, conceded by the Government, but enough had been done to secure adherence.

Calling on a well-known practitioner in the West-end of Glasgow, who stood to lose, and indeed has lost, many private patients in consequence of the working of the Act, he nevertheless, and at once, expressed himself as fairly satisfied with the results up to date. The men, he said, who were still opposed to the Act were in many cases chiefly dissatisfied because they had not many insured persons on their list. Here there was a grievance, for while some had little to do, others were overworked to the detriment of science and at the risk of accidents due to strain and haste. The fact that at Glasgow there is a practitioner with about 4500 insured patients on his list was, both he and I considered, a very serious matter. The law, however, does not impose a limit, and it is difficult to see what can be done until the patients themselves complain, and this they do not seem in the mind to do. My informant went on to explain that he had joined the panel for the purpose of taking charge of his own patients only. If this were done universally many more practitioners would be reconciled to the working of the Act. He said that he relied on the stipulation that the allocation of other patients was to be carried out with due respect to arrangements made with the practitioners. Altogether he had now on his list about 1500 insured persons, and he was still keeping together a good private practice. This certainly meant an increase of work, but, he allowed, probably a larger income. There was, he found, a great increase of frivolous cases; many insured persons consulted him because they wanted a tonic, and one patient called because he was fearful lest he should be getting bald. On the other hand, 1500 persons, paying him 7*s.* a year each, would represent a larger sum than he used to obtain from this class of patient in fees. Thus, there was one family who had been his patients for 20 years. Some years none of them would be ill. Other years there might be a bill of £1, and at most £2. To-day five members are insured persons; and that meant a steady income of 35*s.* a year, a much larger average than he ever received before.

The Improved Conditions of Contract Practice.

I have now in consideration a practitioner holding a high position in the local profession and established in one of the most fashionable parts of the city. It was natural that he should have very little contract practice in connexion with the old system of clubs and Friendly Societies. Under the Act, however, he has quite a large contract practice. This change was explained by the fact that, before the Act, if the medical officer of a club offended one member of a club he might lose the entire club; to-day he would only lose that one offended person Then, again, if he was on friendly terms with the managers of a club he might offend individual members with less risk of dismissal. This was unfair to the patients. The Act, however, has placed the practitioner and the patient face to face. The patient can no longer threaten his medical attendant with the anger of the officers of his organisation, and the doctor can no longer shelter himself behind the friendliness of any of the managing committee of the club. Hence many medical men are now taking contract practice who previously had no such patients. The Act had simplified

the relations between patient and doctor, said this informant; these were now strictly personal, and neither the one nor the other could secure the intervention of a club or the managing committee of a club. Nor could a patient in a moment of anger about what might prove to be an imaginary grievance dismiss his medical attendant. Time has to elapse and formalities have to be complied with before a change of medical attendant can be effected. I think it will be allowed that during the interval for reflection which procedure under the Act entails misapprehensions may be removed, irritation calm down, and a reconciliation happily effected. The change from contract practice for clubs and Friendly Societies to contract practice as a panel doctor under the Act is in this way a great improvement, and in some respects I think this more than any financial advantage constitutes the great claim of the Act to any favour it may find among practitioners who are used to contract practice. Doubtless, much opposition to the Act still prevails even among Glasgow practitioners. Many object to the idea of compulsion, and on professional grounds contract practice is also condemned. Many, at least in theory, continue to condemn compulsion and contract practice, but consider it right to sink their personal prejudices. I was told by another practitioner that many of his patients had expressed their satisfaction that he had rendered it easy for them to keep him as their medical adviser by joining the panel. And he pointed out that now he enjoyed the certainty of a fixed income, and could, in all sincerity, wish his patients good health, for it meant he would have less work and not less pay.

Why Resistance Failed.

Calling upon the secretary of the Local Medical Committee, I found he agreed that at first the medical profession at Glasgow were opposed to the Act, but he said that they rapidly changed their opinions when the better conditions were offered. The Medical Committee had been formed according to the Act to elect medical representatives on the Insurance Committee and to represent the medical men practising in the city as extended last November. The Greater Glasgow then created must have a population of about 900,000. Though probably more names appear on the register there are about 600 active practitioners. Of these, on March 14th 374 were on the panel and they had 203 panel chemists at their service. The number of insured persons was then 351,000—a good third of the entire population. Certain districts of Glasgow are densely populated by insured persons, but the panel doctors are not distributed according to this population; and, therefore, the panel doctors who happen to live in these crowded districts are more likely to be selected by the insured. This rendered it more difficult to secure unanimity in the ranks of the profession. It follows, of course, that the practitioner in a district where nearly all the inhabitants are insured persons will view the Act in a different light from those practitioners who live in residential suburbs where there are but few insured persons. To try to bring about a common agreement many meetings and discussions were held. The most important meeting was at Christmas, 1912, when the members of the West of Scotland Branch of the British Medical Association were convoked. This includes Ayrshire, Lanarkshire, and other counties. Some four to five hundred members attended, and opinions were so divided that a resolution to accept the new terms offered in regard to the Act was only carried by the casting vote of the chairman. The resolution did not approve of the Act, but said that as no satisfactory alternative was forthcoming it had better be accepted. The real weakness of the situation was due to the fact that only half of the members of the profession took part in this effort, and no one could tell what the absentees would do. But it was fairly well known that 80 or 90 practitioners were prepared to go on the panel, and this was in itself quite sufficient to render effective resistance impossible. A good deal of club contract practice existed on the East side of Glasgow, and obviously contract practice under the Act would be a great improvement. A large number of practitioners, attracted by the prospect—in fact, by the certainty of earning a larger income in a more pleasant manner—were sure to join the panel, and this would lead many others who were not quite so convinced as to the advantages. Hence the resistance to the Act became seriously weakened.

In Glasgow, of course, allowance was made by the more thoughtful members of the profession for the fact that there might be among the young and newly qualified medical men quite a number looking forward to whole-time appointments. This was for the latter a golden opportunity. Instead of painfully and patiently building up a practice, if they joined the panel and judiciously selected a district where there was most need of panel doctors, they might easily start life with a certainty of at least £300 and perhaps more in 7*s.* capitation fees from insured persons. Never before in the history of medicine has there been so brilliant a prospect for beginners as that offered by these circumstances. This must be allowed, even while we wonder what such bright commencements will proceed to or end in. Medical men who have grown grey in the slow process of building up a practice have been not a little shocked to see unknown youths jump into good incomes and extensive practices in the course of a few weeks. Such quick change feats go against every prudent instinct and engender forebodings as to the evil consequence that must ensue upon the wreckage of well established and well-tried precedents. In the meanwhile, practitioners who had but few private patients, and many club patients who only paid from 2*s.* 6*d.* a year to 4*s.* at most, are delighted to find that they have now 2000 and some even close upon 4000 insured persons on their list, each bringing in 7*s.* a year. They may grumble at the excessive amount of clerical work this has entailed, but those whose income has thus been doubled and more than doubled in the course of a few weeks can put up with some inconveniences.

As a further source of congratulation practitioners among the poor are getting paid now for work that had never before been remunerated. At Greenock, notably, I heard of three medical practitioners who never expected to receive more than 50 per cent. of the very modest fees they charged their patients. Now that the entire population from which such patients were drawn are paying 7*s.* a head, their medical attendants are able to afford motor-cars.

The Poorest Pay for the Best Work.

Nevertheless, and in spite of these golden stories, there is the other side. Wages are rising, trade is just now very brisk; and on the Clyde they are building the largest ships in the world. When there is a shortage of money, will the Act work as easily? There are to-day many able practitioners on the Glasgow panel who have but few insured persons on their list. This is due to the fact that they have no consulting room or surgery in a neighbourhood where panel patients particularly live. Also, however high the standing of a medical practitioner may be, it is possible that his reputation is not widely spread among the class of persons likely to be insured. Many doctors with a middle-class practice have suffered. The sons and daughters of well-to-do parents may be earning, as clerks and typewriters, £1 or £2 a week. When they fell ill, their parents paid full fees for medical attendance, but now they are insured persons. So as not to lose them or their parents, their family physician has put his name on the panel; but the children of well-to-do people make up a poor panel list. They expect just about the same careful attendance they had before when their parents paid full fees for them, and they are not numerous enough to ensure a good income for their medical attendant. Here a good class of medical practice is receiving very poor pay. To treat a patient as club patients used to be treated pays well, and the poorest sections of the community have not been accustomed to more elaborate treatment. But patients for whom the parents used to pay 3*s.* 6*d.* or even 5*s.* a visit are not to be so easily satisfied. Their medical attendants must avoid the appearance of giving rough-and-ready treatment, which may be at bottom every whit as good as any supplied with greater observance of ceremony, lest they should get a bad name and so lose patients (the parents, for example) who are not insured and continue paying full fees. Thus, it will be seen that the better-class practice may well be the worst paid.

A Serious Danger.

On the other hand, so abundant is the remuneration in comparison with the trouble taken in attending to the poorest sections of the community that one medical man in Glasgow is giving up a large private practice because he finds practice under the National Insurance Act pays so much better. This panel doctor's list is so long that he is credited with having one birth per day. There is obviously in this a very

great danger. Some measure should at once be enforced to prevent the creation of a vested interest in lists that are too long for efficient service. This I brought prominently to the notice of the secretary of the Medical Committee and the secretary of the Insurance Committee. Both readily recognised the evil, admitted its existence in Glasgow, and the risks to public health it entails. The secretary of the Medical Committee thought that to limit the lists more experience must be acquired. There must be clear evidence that the work is not done properly. Then what was too much for one man was barely enough for another, the personal factor counting for so much in the management of a practice. In a congested area, again, many more visits can be paid than in a widespread district with but little increase of trouble or outlay. The secretary of the Insurance Committee, on his side, hoped things would find their proper level by reason of the complaints that would be made. There would be inquests, and investigations, and scandals, and the panel doctors would exercise pressure upon each other. The patients on their side would also help by withdrawing their names from overburdened lists. To this I naturally objected that, in the meanwhile, vested interests would have been created; and however just the cause of complaint it was always extremely difficult to remove a vested interest. In any case there was not a likelihood of many complaints. The poorest, the most forlorn sections of the community, those who have the best cause for complaining, were often lacking in the courage or capacity to take action, particularly if the complaint had to be made in a formal manner and in writing. Is it necessary to wait till several preventable deaths have occurred before attempting to check what, on all hands, is recognised to be a danger and an evil? Some exceptions could be made while matters were adjusting themselves; but it might at once be proclaimed that no panel doctor will be allowed to permanently keep on his list more than, for instance, 2000 names unless he can show that he has good claims for being able to organise his services to the real advantage of a larger number.

(To be continued.)

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Rise in Price of Food in Relation to Wages.

THE *Manchester Guardian* has made some interesting inquiries as to the rise in the price of staple articles of food in recent years. It is contended by some writers that though nominal wages are higher the purchasing power of wages has actually declined. The prices stated below are the prices at the port, and 25 per cent. or thereabouts must be added to cover the additional costs. I may tabulate a few items:—

Per lb.	1906.	1912.
Bacon	6·64*d.*	7·21*d.*
Butter	12·82*d.*	13·95*d.*
Cheese	6·55*d.*	7·47*d.*
Flour	1·09*d.*	1·24*d.*
Lard...	4·89*d.*	5·77*d.*
Meal...	1·18*d.*	1·44*d.*
Sugar	1·83*d.*	2·08*d.*
Tea	15·42*d.*	15·85*d.*

The duty on sugar was reduced in 1908 from 4*s.* 2*d.* per cwt. to 1*s.* 10*d.*, and that on tea from 6*d.* to 5*d.* per pound last year. During the last six years the round increase is 10·4 per cent., and the same result is obtained if 25 per cent. is added to get the retail prices. Thus, 22*s.* must be paid for what would have cost only £1 six years ago. If the period of comparison is carried back to 1898 the increase is 16·33 per cent. Potatoes have gone up fully 50 per cent. The price of fish has also greatly increased, while as to English meat the rise in price is reckoned as from 10 to 15 per cent. The average price of coal at the pit mouth has risen in the same period from 10*s.* 9*d.* a ton to 14*s.* 9*d.*, an increase of 37 per cent. As to wages in Lancashire, in many occupations—clerical workers, warehousemen—the great mass of unorganised labourers—the increase, if any, has been only trifling. In the cotton trade an advance of 5 per cent. was given to cardroom operators in June, 1907. The average wages for men are from 29*s.* to 34*s.*, for women from 19*s.* to 28*s.*, and for girls from 9*s.* to 13*s.* Weavers earn from 24*s.* to 33*s.* per week. Carpenters a year ago obtained an increase from 9½*d.* to 10*d.* per hour. The position of organised carters has been improved, for they now have a minimum wage of 25*s.* It is clear that it is more difficult to-day for workers to maintain the same standard of living as five or six years ago.

Infantile Mortality and Women Workers in Mills and Factories.

A survey of the courts and alleys of Warrington by members of the Health Week Association has demonstrated the success attending the provision of more light and air and a purer atmosphere by the local authorities. Dr. J. C. Hibbert, the medical officer of health, in a lecture urged the people to coöperate with the authorities in procuring for themselves the safeguards of modern sanitation. Mr. P. M. Oliver, speaking of the heavy infantile mortality, stated that at Burnley 60 per cent. of the married women under 35 years of age worked at occupations away from their homes, and 20 per cent. of their children died before they were one year old. At Bury 45 per cent. worked away from their homes, and 16 per cent. of their children died during their first year. In Burton, where the percentage of women employed was only 2, the infantile mortality in the first year was 12 per cent. Mr. Oliver concluded: "You send the woman to the mill and you send the child to the grave." From recent investigations it would appear that about 70 per cent. of the infantile mortality is caused by (1) unsatisfactory feeding, (2) mismanagement and exposure, and (3) defective physique of the mother—to each of which causes the daily absence from home is contributory. These conclusions confirm Dr. Reid's 20 years' investigations in the potteries.

The Sanitary Condition of the Hayfield District.

In his final report before retiring Mr. C. J. Bennet, of Buxton, for nearly 40 years medical officer of health for the Hayfield district, says that in the district, which should be one of the healthiest in England, scarlet fever and diphtheria are endemic, while one person in every 100 houses is suffering from tuberculosis. He impresses on the authorities the terrible waste in money, life, and economic efficiency thus entailed.

Insurance Act Abuses.

In the Hyde district it is stated that there is considerable abuse of the Insurance Act by women mill-workers. Many seem to think that so long as they get a doctor's certificate they can do anything except go to the mill. Some do their own washing, baking, and general housekeeping; some go to picture palaces when they are reported "sick" and are drawing sick pay. Against 2½ per cent. of male members drawing insurance money, the percentage of female workers is between 5 and 6. In the Accrington district, while there have been abuses of the Act, the number of cases is small, probably because immediately the Act came into operation the District Weavers' Association appointed a sick visitor and a sick steward, whose work it is to go round daily, at any hour, paying surprise visits to those in receipt of sick pay, by way of showing what those on the sick list cannot do under the Act.

April 22nd.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The late Mr. Jordan Lloyd.

AT a special meeting of the general committee of the Queen's Hospital the following resolution was passed:

That the General Committee of the Queen's Hospital record with the deepest sorrow the sudden and untimely death of Mr. Jordan Lloyd, who since 1879 has been closely associated with the work of the institution, first as house surgeon, 1879, then as casualty surgeon, 1881, and as honorary surgeon from 1883 until his death. They gratefully recall his devotion to his duties, and his unfailing kindness to all with whom he came in contact. By the death of a surgeon of such eminence, skill, and distinguished reputation, the public, the hospital, and the medical profession suffer a grievous loss. The committee desire to tender to Mrs. Jordan Lloyd and the members of her family their most sincere and heartfelt sympathy.

A subcommittee was appointed to consider how the services of the late Mr. Jordan Lloyd may be perpetuated.

Birmingham Health Week.

Two mass meetings will be held in the town hall on April 28th and 29th, at which the Bishop of Birmingham,

Dr. John Robertson, the medical officer of health, and Professor H. Gilbert Barling, the Vice-Chancellor of the University, will speak. A large number of clergymen and ministers have promised to preach health sermons on the Sunday, and addresses will be given in over 60 adult schools and P.S.A.'s on the same day. Lectures will be given at each of the branches of the General Dispensary. The baths committee has arranged for special exhibitions of swimming and life-saving in the city baths during the week. Many other meetings in various places are also arranged.

April 22nd.

BRISTOL AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Bristol and Sanatorium Treatment.

THE health committee has adopted a scheme for the treatment of tuberculosis on a civic basis, and has sent it to the Insurance Committee for consideration before submitting it finally to the city council. It is proposed to establish two dispensaries, one in Portland-square and the other in Redcliffe Parade (this dispensary has already been at work for over a year on a voluntary basis). As to sanatoriums, to the 21 beds already available for Bristol cases at Winsley 29 more are to be added; while three new blocks of 20 beds each are being built at Ham Green. These latter will include accommodation for advanced and after-care cases. The estimated annual cost per bed is £78 at Winsley and £69 14*s.* at Ham Green. The health committee is prepared to appropriate 55 beds, 40 of them at Winsley, for insured persons. The medical staff will consist of: 1. A tuberculosis officer to control the clinical work of the dispensaries, to act as expert clinical adviser to the Insurance Committee, and as consulting officer for purposes of domiciliary treatment; salary £400, rising by £50 a year to £500. 2. A resident medical officer at Ham Green; salary £300, rising by £50 a year to £400, with board and lodging, less any sum received for the treatment of insured persons. 3. An assistant medical officer to live at Ham Green, and to help both in sanatorium and dispensary work; salary £200, rising to £250. The whole scheme will be administered by a consultative committee, consisting of six members of the health committee, four of the Insurance Committee, and two of the Civic League. Practically the whole of this scheme has already received the approval of the Insurance Committee.

Bristol Eye Dispensary.

The report for 1912, which was presented at the annual meeting of this institution, contained several items of interest. The number of new out-patients seen during the year was 3309, a considerable increase on previous years. Owing to the large increase in refraction work falling on the staff as a direct consequence of the medical inspection of school children, it has been found necessary to refuse to undertake the ordering of spectacles for patients coming to the dispensary as a result of school inspection. Mr. P. J. Worsley has resigned the chairmanship, an office which he has filled with conspicuous success for nearly 20 years. Mr. E. H. E. Stack also has resigned his surgeonship, which was filled by the promotion of the senior assistant surgeon, Mr. A. Fells.

The Insurance Medical Service in Bristol.

The opening of the second quarter of the operation of the medical benefit organisation of the Insurance Act finds almost 10,000 persons who have neglected to choose a doctor for themselves; these, unless they make haste, will be assigned to panel practitioners by the Insurance Committee. The number of panel practitioners will not alter materially; several have resigned, but their places will be filled by others who had not heretofore joined the service.

The Decrease of Vaccination in the West of England.

At a recent meeting of the Warmley (Gloucestershire) board of guardians the chairman said that the whole system of vaccination was in a wretched state. The clerk added that the more the vaccination officers worried people with unvaccinated children, the greater were the number of exemptions granted. The diminution of vaccination in the West of England is undoubtedly serious.

Increase of Salary for Medical Officer of Health.

At a meeting of the Somerset county council held last week it was decided, on the recommendation of the public health and housing committee, to increase the salary of the medical officer of health by the sum of £100 per annum.

Death of Mr. George Alfred Harrison, L.R.C.P. Lond., M.R.C.S. Eng.

Mr. G. A. Harrison, who died recently in his forty-seventh year at Eltham, New Zealand, from blood-poisoning contracted in the performance of his professional duties, was the son of Dr. A. J. Harrison, consulting physician to the Bristol General Hospital. He was educated at Clifton College, Pembroke College, Cambridge, and St. Bartholomew's Hospital. He took the Conjoint qualifications of London in 1893. Mr. Harrison had been in practice for several years at Eltham, where he was highly esteemed. He leaves a widow and two sons.

April 22nd.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool Scheme for a Proposed Sanatorium for Tuberculosis.

As the outcome of a deliberation at a special meeting of the port sanitary and hospitals committee of the Liverpool corporation it was decided to ask the city council to allow the committee to advertise for competitive designs for a sanatorium for tuberculous patients, and to offer three premiums—viz., first, £150; second, £100; and third, £50. The committee considered all aspects of the question, and was unanimous in its recommendation, which will come up for consideration at the next meeting of the council. The sanatorium proposed to be erected will be altogether separate from the present hospital at Fazakerley, and will provide accommodation for 250 patients. The cost of the building will be partly borne out of the grant provided for in the Budget of 1911. The committee's expectation is that the amount forthcoming from this source will be approximately two-thirds of the total. The need for the sanatorium is very urgent, and the committee hopes that the scheme will pass the council without opposition, so that the work of construction will proceed with the least possible delay.—Dr. W. C. Oram has been appointed by the education authority to the charge of the new clinic for X ray treatment of ringworm.

Liverpool Royal Infirmary and its Need of Radium.

The need for a supply of radium for use in cancer cases has long been felt by the director of the electrical department at the Royal Infirmary. It is with pleasure that I am able to record that the matter has been taken in hand by the proprietors of the *Liverpool Daily Post and Mercury*. A leading article appeared a few days ago in the columns of that newspaper appealing to the generosity of the Liverpool public for contributions towards a supply of radium. Letters expressing sympathy with the object of the appeal have appeared daily since the publication of the article. It is considered that £2000 will enable the committee to purchase the necessary quantity. £800 have already been promised, and it is hoped that in a few days the whole amount will be forthcoming.

Changes in the Honorary Staff of the David Lewis Northern Hospital.

At a meeting of the election committee held on April 16th Dr. John Owen, honorary assistant physician, was elected honorary physician; and Mr. George C. E. Simpson, honorary assistant surgeon, was elected honorary surgeon. Dr. Owen takes the place of Dr. W. B. Warrington, who has joined the honorary staff of the Liverpool Royal Infirmary; while Mr. Simpson succeeds Mr. Damer Harrisson, whose term of office has expired.

Liverpool Medical Institution.

At the last ordinary meeting of the session the president, Mr. Robert Jones, proposed "that the congratulations of the members of this society be tendered to Dr. William Blair Bell on the occasion of the Hunterian medal having been awarded to him by the Royal College of Surgeons, England." The proposition was carried with acclamation.

April 22nd.

WALES.

(FROM OUR OWN CORRESPONDENT.)

Diminishing Entries to the University of Wales.

CONCERN is being expressed in certain quarters at the falling off in the number of candidates who enter for the matriculation examination of the University of Wales. In 1908 there were 867 entries, and in 1912 only 408. Various explanations have been put forward to account for this reduction, though possibly it is due to more than one cause. The fees for the Welsh examination are a little higher than those at the Scottish universities and at some of the English universities, but it is hardly likely that this has an appreciable influence on candidates in their choice, and it is contended that the high percentage of failures indicates a more difficult examination than elsewhere, though this fact cannot wholly account for the great drop in the number of entrants. The most probable explanation is that owing to the large number of graduates who have left the University in former years it is found that the possession of a degree is not of so much assistance as it formerly was in obtaining lucrative positions, and that young men are finding they can spend the years which would be given to their university life to better purpose in commercial careers.

Retirement of Dr. H. R. Vachell from the Cardiff Hospital.

Under one of the general rules of the King Edward VII. Hospital, Cardiff, requiring the retirement of members of the medical staff at the age of 65 years, Dr. Herbert R. Vachell has resigned his position of senior honorary physician. Dr. Vachell was first associated with the hospital as long ago as 1877, when he was elected house surgeon, an appointment which he held for three years. From 1885 until 1895 he was out-patient medical officer, and in the latter year was elected an assistant physician, becoming full physician in 1902. Some idea of the development of the hospital during the 36 years in which Dr. Vachell has been officially connected with it may be gathered from the statement that in 1877 the number of in-patients treated was 493, and the number of out-patients 4918, while last year these numbers were multiplied by five. The income, which was under £3000 in 1877, is now five times that amount. At the meeting of the board of management at which Dr. Vachell's resignation was tendered, tribute was paid to the zealous, conscientious, and able manner in which he had carried out his duties as a member of the medical staff during the whole of the lengthy period of his connexion with the hospital.

Insanitary British Ships.

In his annual report to the Newport (Mon.) port sanitary authority the medical officer of health, Dr. J. Howard-Jones, once again draws attention to the inadequacy of the sanitary supervision of British ships by the Board of Trade. In two newly launched vessels which arrived at Newport from the north the crew's spaces contravened the regulations of the Board, although both of them had been certified as satisfactory. During 1912 there entered the port of Newport 1809 "coastwise" vessels, and no fewer than 281, or 15·5 per cent., were found to be insanitary in some respects, the percentage of steamships being double that of sailing ships. The suggestions in the report are that regulations should be made for ensuring a higher standard of hygiene on the part both of masters and members of the crew; that there should be an increase in the staff of Board of Trade marine surveyors in order that the regulations of the Board might be efficiently enforced; and that as the accommodation provided on many new vessels is very unsatisfactory and antiquated greater attention should be given to the elementary principles of domestic hygiene in the designing of the crews' spaces on new vessels. Dr. Howard-Jones again urges the desirability of appointing an inter-departmental committee of the Board of Trade and Local Government Board for considering the whole question of the hygiene of the merchant service. Among the diseases to which sailors are peculiarly liable he includes those associated with the peculiar environment of seamen, such as damp forecastles, contaminated water-supplies, and the close association of the sick with the healthy in the confined quarters on shipboard. It is against these diseases that the efforts of the port sanitary authority for improving the sanitation of vessels should be directed, more especially having regard to faulty construction, wear and tear, lack of cleanliness, and forms of nuisance generally on board.

April 22nd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

National Health Week.

IN many parts of the country last week was observed as the National Health Week. The object of the movement is to arouse an intelligent interest in health even among the most thoughtless and ignorant members of the community, and to secure increased support for the local health authorities and voluntary societies. One of the latest towns to take it up in Scotland is Wishaw, and a start was made in the beginning of the week, when special sermons were preached in most of the churches on Sunday. During the week the children in the schools had short and simple addresses given to them; cookery demonstrations were given each evening at suitable centres, where exhibitions of gas fires, cookers, &c., also took place; the local cinematograph halls showed in the afternoons instructive films illustrative of some appropriate health topic; and suitable literature was distributed throughout the burgh by the Boy Scouts. The movement was largely supported, and prominent public men interested themselves by presiding at the various gatherings.

The Kirkcaldy Small-pox Outbreak.

Dr. G. W. McIntosh, medical officer of health of Kirkcaldy burgh, has just issued an interesting report on the recent small-pox outbreak, which occurred about the end of September last and was responsible for 42 cases before the end of the year. As no case of small-pox was known of in Scotland about the time the outbreak occurred, Dr. McIntosh was forced to the conclusion that the flax at the spinning mill, among which the boy who first contracted the disease worked, was most likely to have borne the infection to him. During the outbreak free vaccination was offered, and medical practitioners vaccinated 6395 persons at a cost of £639 10*s.* to the town. In addition to this number, 500 were vaccinated by Dr. McIntosh, and 300 at their own expense, giving a total of at least 7195, thus showing that more than one-sixth of the entire population had been recently vaccinated. Had this outbreak of small-pox been delayed another five years a large number of unvaccinated children, exempted through the loophole of the conscientious objection clause, would have been attending the schools, and the consequences might have been appalling.

Vaccination at Buckie.

The local medical officer reported to the Buckie town council last week that something like three-fourths of the population of the burgh would be unvaccinated shortly through conscientious objections.

A New Whole-time Appointment in Orkney.

At a meeting of the secondary education committee for the county of Orkney at Kirkwall last week Dr. R. P. Heddle was appointed medical officer for Orkney under the scheme for the inspection of school children. By arrangement with the county council it is proposed that Dr. Heddle will retain his appointment as medical officer of health for the county, but he will relinquish his private practice and devote his whole attention to the duties of public health and medical inspection of school children.

The National Insurance Act at Work.

Interesting figures have lately been published regarding the working of the Act in the rural parish of Strichen, through the local secretaries of the Free Gardeners Society and of the Strichen branch of the Farm Servants Union. No attempt to make deductions from the limited numbers is made, but the facts are interesting as being probably typical of other rural parishes in the north-east of Scotland. The great majority of the employees in the district are insured with these two societies. The former has 250 of both sexes and of all classes of workers on its books, and the latter has 94 of both sexes, all farm workers, making a total of 344 insured persons. The Free Gardeners administered sickness benefit during the quarter to 18 State insured members, 13 men and 5 women, the men receiving

a total of £11 5*s.* 2*d.*, and the women a total of £3 15*s.* Each male got an average of 17*s.* 3*d.*, and each female an average of 15*s.*; the average for both sexes combined works out at 16*s.* 8*d.* each. This is equal to a return of about 1*s.* 2*d.* to each of the total insured persons, the males receiving about 1*d.* more each than the females. Six cases of maternity benefit were paid £9. There are in addition the medical benefit and drugs; but no attempt has been made to set down the value of medical attendance or consultation and drugs in figures dealing with one quarter. The length of sickness among the 13 males ranged from 4 to 39 days, and totalled 170 days; the loss among all insured males amounted to a fraction less than one day, while the loss among all insured females amounted to slightly more than one day. Roughly speaking, 9 per cent. of male farm servants were in receipt of sickness benefit, as compared with 4 per cent. of all other males; 8 per cent. of female farm workers were in receipt of sickness benefit, as compared with 7 per cent. among all other female servants. With regard to the figures shown by the Farm Servants Union, with its 86 men and 8 women, all farm workers, none of the females received sickness benefit. Five of the men obtained an average of 9*s.* 10*d.* each, as compared with the 17*s.* 3*d.* of the Free Gardeners. Each of the 94 members had returned to him or her, therefore, about 6*d.* on an average, as compared with the 1*s.* 2*d.* among the gardeners. Maternity benefit was given in two cases.

April 22nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Medical Certification under the National Insurance Act.

A MEETING of the Advisory Committee to the Irish Insurance Commission was held on April 15th, when the chairman, Mr. P. D. Glynn, made a detailed statement concerning the reception of the scheme for medical certification put forward by the Commissioners. Up to the previous day the Commissioners had received the names of 610 doctors to act on the panels. Of these, 14 had afterwards withdrawn. It would appear from Mr. Glynn's statement that panels have been constituted in about one-third of the country. In a few of the areas—e.g., Belfast, Antrim, Armagh, and Donegal—the panels seem to be adequate. In other areas, as in Clare and Mayo, the panels, though declared "complete," are certainly inadequate. The Advisory Committee discussed the matter in private, and resolutions were carried that in areas where the panels have failed to fill the Commissioners, after consultation with the Approved Societies and Insurance Committees of those areas, should appoint medical practitioners for purposes of certification, and that where societies already had medical officers their certificates should be accepted and paid *per capita* in accordance with the number of members of these societies in those areas covered by the first part of the resolution. The Commissioners are therefore convening, in each of the areas referred to, conferences between representatives of the Insurance Committees and the Approved Societies.

Women's National Health Association.

At the annual meeting of the general council of the Women's National Health Association held last week in Dublin, Lady Aberdeen said that there were 19,000 members and 151 branches. Eleven branches had been dissolved, but 11 new ones had been formed. The annual subscriptions amounted to £994 9*s.* 11*d.* In addition the branches had raised approximately £4000. The association had been entrusted with a Government grant for providing sanatorium accommodation for patients under the National Insurance Act. Between 80 and 90 schools were receiving meals from branches throughout the country. A number of branches were interesting themselves in encouraging agricultural and horticultural industries. The special report of the Collier Memorial Dispensary would give an idea of what might be done by those dispensaries when they were fully established. 1700 patients had been registered at the dispensary, and 4831 persons had been brought under the influence of tuberculosis nurses. The dispensary having been transferred to the corporation of Dublin, the balance of the Collier donation would be applied towards the erection of a pavilion at the Peamount Sanatorium. A resolution was passed asking the Government to strengthen the existing laws dealing with the disinfection, and, in proper cases, the destruction of infected dwellings.

Vacancy on the Council of the Royal College of Surgeons.

There is a hot canvass for the vacancy on the council of the Royal College of Surgeons, created by the death of Sir Henry Swanzy. Several Dublin practitioners are candidates, while, on the other hand, a memorial has been widely and influentially signed urging the election of a country Fellow. The unexpired term of office is brief.

The Extension of Medical Benefit to Ireland.

At a meeting in Dublin, on April 18th, of the Irish County Councils' General Council, a resolution of the executive committee that medical benefit under the National Insurance Act should not be extended to Ireland—except the urban centres—unless accompanied by a revision of the Poor-law medical system, was adopted. This resolution, taken in conjunction with the declaration of the actuary to the Insurance Commissioners that extension to the county boroughs and not to the rest of the country is "actuarially impossible," appears to render unlikely the proposed project of extending medical benefits to Ireland. A conference will assemble in London on April 30th to consider the question.

The Final Census Returns for Ireland.

A Parliamentary Blue-book of over 600 pages, just issued, gives the corrected figures of the lately taken Census of Ireland. The total population of Ireland, which in 1901 showed a total of 4,458,775, is now (1911) 4,390,212, indicating a loss in the decennium of 68,556, or 1·5 per cent. One in every 57 of the population is returned in 1911 (as compared with 1 in 44 of 1901) as receiving Poor-law relief. The number of emigrants during the ten years ending March 31st, 1911, amounted to 345,159 (171,875 males and 173,284 females), which is a smaller number than in either of the two preceding ten-year periods. There are only three cities in Ireland with populations over 50,000—viz., Belfast, 386,947; Dublin, 304,802; and Cork, 76,675. During the ten years 1901–11, the population of Belfast has increased by 37,767, that of Dublin by 14,164, and that of Cork by 551.

Irish Emigration in 1912.

During 1912 there were 29,799 emigrants from Ireland—a decrease of 1229 as compared with 1911, the number being below the average for any year within the decennial periods for which records are available. Of the emigrants, 6·9 per 1000 were from Munster, 7·5 from Ulster, 10·6 from Connaught, and 3·3 from Leinster. Over 20,000 went to the United States and nearly 6000 to Canada. Since May 1st, 1851 (when statistics of emigration were first begun), 4,247,360 Irish people have emigrated, and of these 2,207,637 were males. This number represents 81·4 per cent. of the average population of Ireland, Munster's contribution to the total equalling 109·9 per cent. of her average population, Connaught's 89·7 per cent., Ulster's 69·2 per cent., and Leinster's 55 per cent. Roughly, two-thirds of last year's emigrants were between 15 and 25 years of age, and one-quarter were between 25 and 35—that is, it is the very flower of the people who are emigrating.

Londonderry Doctors and the Friendly Societies.

Owing to the failure of the Federation of Londonderry Benefit Societies to arrange terms with the local doctors, it was decided on April 7th to import to that city a number of medical men who had applied for appointments. This dispute has gone on since the doctors resigned their contract appointments with Friendly Societies in January last.

Death of John McGee MacCormac, M.D. Durh.

Dr. John McGee MacCormac, of Belfast, dropped dead suddenly from heart disease on April 20th while out walking. Dr. MacCormac was born at Ballynahinch, co. Down. He was educated at the Royal Academical Institution and at Queen's College, Belfast. In 1867 he became a Licentiate of the Royal Colleges of Physicians and Surgeons, Edinburgh. After practising in Belfast, in 1876 he went to England and attended the London hospitals. In 1885 he became M.D. of Durham. Returning to Belfast, he established a considerable practice in nervous diseases in the North of Ireland, and in 1896 he founded the Hospital for Nervous Diseases, of which he was honorary physician at the time of his death. He was a Fellow of the Royal Society of Medicine and a

member of the Neurological Society of London. He wrote considerably on nervous diseases in the medical journals, some of the articles appearing in THE LANCET. He is survived by his widow and by one daughter, who is married to Dr. J. B. Lendrum, of Oldham.

April 22nd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Professor Landouzy.

ON April 14th Professor Landouzy, doyen of the Faculty of Medicine of Paris, was elected, by 42 out of 55 votes, a free associate Member of the Académie des Sciences.

Lesions of the Semilunar Cartilages.

M. Quénu, the eminent surgeon, recently said at the Société de Chirurgie that he had had to deal with three cases of lesions of the semilunar cartilages of the knee. Unfortunately, he had been unable to trace one of the cases, but one of the other two was that of a man, 26 years of age, who in 1890 had had pain and swelling of the knee following on a fall. These symptoms rapidly improved and disappeared after eight days of rest and treatment by massage. From time to time, however, he suffered from hydrarthrosis, also from a sudden stoppage of flexion of the limb during walking, accompanied by a jumping sensation (*sensation de ressort*). When M. Quénu again saw this patient, seven years after the accident, he found on the inner aspect of the knee at the interarticular level an elongated projection, which became displaced during the movements of the joint. On making an incision it was found that the anterior cornu of the semilunar cartilage was torn, and that the cartilage was twisted outwards upon itself. Partial resection brought about a cure. The other case was that of a man, 22 years of age, who after a fall was unable to flex the leg completely. One day when seated he found himself unable to rise unaided, which led him to consult the speaker. He had a slight swelling of the knee, and on its inner aspect a painful projection was found. Movement of the leg caused pain, and complete extension was impossible. M. Quénu diagnosed a tear of the internal cartilage, part of it being reflected upon the rest. The name of traumatism of the semilunar cartilage, he said, seemed admirably suited to this class of injuries, which occurred in displacements, luxations, or fractures. When inflammation existed it was only secondary. The diagnosis of this condition could be made, without regard to the more or less recent date of the accident, by the impossibility of extending the leg and the habitual absence of hæmarthrosis. Radiography failed usually to afford any precise information. The injury could be distinguished from foreign bodies by the seat of the pain, which in the latter was not fixed, by swelling at the interarticular line and by the presence or absence of intra-articular effusion. As to simple inflammation of the meniscus, M. Quénu considered it open to doubt. Roux claimed to have seen frequent examples of it, but the absence of any anatomical verification discounted the precise value of the observations. As to treatment, Lejars and Jacob, agreeing with Bergmann, advised total resection of the cartilage. If only one end was detached M. Quénu considered partial resection sufficient, and his two patients treated in that way were both cured. If a fissure or a fracture coexisted total resection of the cartilage was necessary. In certain cases fixation might suffice.

The Treatment of Hæmoptysis.

On April 11th, at the Société Médicale des Hôpitaux, communications were made by various authors concerning the treatment of hæmoptysis in the tuberculous. M. Rist recommended the use of intravenous injections of an extract of the posterior lobe of the hypophysis. M. Sergent said that he had obtained the best results from ipecacuanha powder in small doses, combined with small amounts of opium. M. Flandin reported a case of profuse hæmoptysis checked on the day of its occurrence by a subcutaneous injection of 4 centigrammes of emetine hydrochlorate.

A Provident Association for French Medical Men.

A mutual aid society for the women and children of medical men has been established in Paris under the patronage of the Société Centrale. The statutes of the new society have been approved, and, thanks to the already large membership, it has begun operation. It proposes to establish for its contributing members retiring pensions (*des pensions de retraites*) according to the resources at its disposition, to award annual grants, and to give material aid to the contributing members, as well as to their families, when they are ill or infirm. The chief aim of the society is the establishment of a maximum retiring allowance of 360 francs. A third or two-thirds only of the retiring allowance, to mature at 55 or 60 years of age, may be subscribed for with premium accordingly, or after 15 annual payments when entrance to the society takes place after the age of 45. The premiums, which may be paid every three or every six months, may go either to the assignable or to the reserved capital. In the latter case the premiums paid are always returned to the heirs of the deceased, whether the latter had retired at the time of his death or not.

The Treatment of Obesity.

M. Pron reported recently to the Société de Thérapeutique two cases of obesity which were markedly improved by a regimen in which the value in calories of the food allowed was completely ignored, regard being paid only to its digestibility; there was also in these cases a notable diminution of physical exercise. These observations show that, even when there is, or seems to be, disturbance of the internal secretions (*dysendocrinie*) to which obesity is thought to be attributable, the antidyspeptic regimen and the diminution of exercise diminish adiposity to an appreciable extent. The cessation or diminution of the irritation exercised on the solar plexus and the cerebro-spinal nerve system modifies the respective trophic centres and allows them to impress on the phenomena of nutrition, as on those of the internal glandular secretion, a normal or nearly normal functioning.

The Royal Institute of Public Health.

The Royal Institute of Public Health of London will hold its annual congress at Paris from May 15th to 19th. A French committee, of which Professor Landouzy is president and Dr. Marié-Davy secretary-general, is taking part in the organisation of the congress.

April 21st.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Medical Attendance for English Women in India.

A LAHORE paper goes into this question at some length. It points out that it will probably not have escaped the notice of many who are vitally affected in this connexion that out of 12 men appointed to the Indian Medical Service in the present year three are natives of India. In itself it would appear reasonable that in the Indian Medical Service, which is primarily maintained for the benefit of the Indian army, there should be a fair proportion of those inhabitants of the country who are able enough to qualify for the position of medical advisers to the Indian regiments. Unfortunately, however, the matter does not rest there. There is the very important question of the medical attention required by English women in this country. Rightly or wrongly, all women have a very marked preference to be attended to by medical men of their own race. To this standpoint it is quite impossible for an Indian to demur. If this is the attitude adopted as regards ordinary ailments, it can well be understood that in all matters relating to the sex such an attitude becomes immensely accentuated, and it is in the very nature of the female sex that medical advice and personal medical attention are constantly needed. Within the Indian regiments to which Indian Medical Service officers are first posted the matter is not of very great importance, because in all but the smallest cantonments other doctors are obtainable in time of need. It is, however, from the ranks of the Indian Medical Service in the army that recruits are obtained for the civil surgeoncies of the various districts, and it is in these districts that the pinch is most felt. No doubt these appointments are made by selection, and the matter of suitability for all kinds of work can be taken into consideration at the time of selection, but in the end a proportion of posts in civil employment must be given to any section

of the Indian Medical Service which is sufficiently numerous. It is therefore obvious that the number of Indians in the civil surgeoncies must increase in the future. While this movement is going on, the same pressure that is exerted by other subordinate establishments is seen to be working from the ranks of the assistant surgeons. In every department alike there is the cry that promotion should not come to a dead stop within the lower grades, but that the ablest men should have a right to aspire to certain of the superior posts. There is, therefore, a tendency to increase the civil surgeoncies held by the establishment recruited in this country. Proposals have been set on foot to go even further and to encourage local practitioners to oust the official staff, whether British or Indian. These suggestions will, it is to be hoped in the interests of the country, not mature, and while Mr. Lloyd George is forming an official service of panel doctors at home it is hardly the time for the Home Government to interfere with the official system of this country. However, it is necessary to note that there is a steady decrease in the numbers of European medical men in charge of the districts in India, and it is necessary that this movement should be carefully watched in the interest of European women in the country and all that their presence means. The absence of medical advice of the type to which European women are accustomed is bound to have an adverse effect on those whose lives are to be spent in out-of-the-way stations. The problem is a difficult one, because there is a definite conflict of two interests. On the one hand, it is right that the Indians who qualify themselves for superior posts should enjoy a reasonable proportion of such posts. On the other hand, if there is to be a British administration at all, care must be taken that the strength of the British officers in the various departments is not so low as to cause a loss of efficiency or a lowering of British standards. The same problem crops up in a different way in the Educational Department, where Western education has been accepted by so many whose claims to promotion within the department cannot be ignored that the future generations of Indian students will grow up imbibing an imitation of such education without ever coming into contact with any first-hand exponent of Western thought.

The Question of Hospital Fees in India.

The Government of India in the Home Department have issued a resolution on the question whether persons attending hospitals and dispensaries maintained or assisted from public funds should be considered to be entitled to gratuitous medical advice and treatment, irrespective of their circumstances. The Governor-General in Council has recently consulted local governments on this question, and the replies received have indicated a considerable divergence of practice in the different provinces, as also distinct differences of opinion regarding the policy which it is expedient to adopt. The Government of India, while recognising that varying conditions in different parts of the country render it impossible and undesirable to prescribe any one course for universal adoption, are of opinion that action should be taken to enforce the principle of discrimination, the acceptance of which, to their mind, has now become timely. The provinces averse from the introduction of a general requirement of payment are Madras, Bengal, Eastern Bengal and Assam (these inquiries were made before the redistribution of provinces), and Burma. Even in these provinces, however, medical assistance is not given entirely free. In Madras and Assam medicines, as distinct from advice, are generally paid for by persons possessing more than a minimum income. In Burma and Eastern Bengal persons of reasonable means are supposed, in theory, to make some return for attendance in the shape of voluntary subscriptions. On the other hand, the Governments of Bombay, the Punjab, and the Central Provinces are in favour of a system of payment by persons of means. In Bombay rules directed to this end are in preparation, and in the Central Provinces experiments are being tried with a view to arriving at a satisfactory solution. In the Punjab the Lieutenant-Governor has made a public announcement in favour of the imposition of small fees, but some opposition from municipal committees is reported. The United Provinces Government, while conscious of the obstacles which have hitherto been regarded as rendering inexpedient the levy of any charge, considers that these are weakening and that the time has come to review the position. After stating the arguments commonly urged against, and in favour of, the levy of a charge for attendance the Government of India announce their conclusion. They are convinced that resort is at present had to the public hospitals by persons who are in a position to pay for such benefits, and they consider that it is only fair to the growing medical profession that an effort should be made to prevent this practice. With the exception of the more backward areas it should be possible to avoid the pauperisation of the people in this matter without preventing the treatment at the public expense of the poor who are willing to avail themselves of the opportunity. The fear that the refusal of gratuitous relief to those who cannot be described as indigent will prejudice the progress of western science is apt to be exaggerated. Persons in comfortable circumstances have to be educated up to the recognition of a fact that they have no claim to free medical relief at the cost of the State. The Government of India, therefore, declare in favour of the introduction of an efficient system of discrimination, without prescribing any hard and fast rules for adoption everywhere. The local knowledge of those controlling medical institutions must be trusted to devise whatever method may best suit the particular conditions to be dealt with. The Government of India suggest that a beginning should be made in important urban centres, where supervision is strongest, and the supply of private practitioners adequate, especially with reference to private wards in the larger hospitals. Patients who can afford to pay for separate accommodation should be charged a reasonable sum in addition for attendance and medicine, care being taken not to undersell private nursing homes or to compete with private medical men. In rural areas progress may be less rapid and must be adapted to local conditions.

March 26th.

Obituary.

RAYMOND BROADLEY ETHERINGTON-SMITH, M.A., M.B., B.C. CAMB., F.R.C.S. ENG.,

ASSISTANT SURGEON TO ST. BARTHOLOMEW'S HOSPITAL AND WARDEN OF THE COLLEGE; LATE ASSISTANT SURGEON TO THE WEST LONDON HOSPITAL.

WE have to record with great regret the untimely death at the age of 36 of Mr. R. B. Etherington-Smith, a rising surgeon on the staff of St. Bartholomew's Hospital, and world-famous as an oarsman. The news of his death after a very short illness has come as a painful shock to an immense circle of friends and admirers. His ability, his thoroughness, and the singular charm of his character long ago marked him down for a distinguished professional career, and it is difficult to write of his loss without emotion. On Thursday, April 17th, he was found to be seriously ill. That afternoon he was operated on for general peritonitis at St. Bartholomew's Hospital by a colleague. When the organism was identified as pneumococcus the gravest fears were entertained, but everything possible was done. On Saturday morning he died in Paget Ward to the great grief of all who knew him.

Raymond Broadley Etherington-Smith was born in 1877, the son of Mr. J. H. Etherington-Smith, a Bencher of the Inner Temple and Recorder of Derby. From Repton he proceeded in 1895 to Trinity College, Cambridge, where he immediately made his name as an oarsman of great promise. The long story of his successes on the river has been told elsewhere. He soon reached the very front rank among amateur watermen and remained there for over ten years, taking an important part in many notable victories. He rowed thrice for Cambridge and was President of the C.U.B.C. in 1899, when Oxford lost for the first time after nine consecutive successes. He captained Leander during four seasons, and three times rowed in the Leander boat which won the Grand Challenge Cup at Henley. His last and greatest feat on the river was in 1908, when he captained the United Kingdom eight which beat the Belgian crew in the Olympic Regatta. In rowing matters his advice and help were eagerly sought and generously given, and as a coach he brought out the best of every man.

Etherington-Smith joined St. Bartholomew's Hospital in 1900. He took the M.A., M.B., and B.C. degrees in 1903, and became in turn ophthalmic house surgeon, house surgeon, extern midwifery assistant, and senior resident anæsthetist at St. Bartholomew's Hospital. In 1907 he obtained the Fellowship of the Royal College of Surgeons of England, and

was immediately appointed demonstrator of anatomy in the medical school of his hospital. A year or two later he became surgical registrar and demonstrator of surgical morbid anatomy, and was appointed Warden of the College, coming into residence at the Warden's house within the hospital precincts. By this time he was assistant surgeon at the West London Hospital, where he had previously been surgical registrar.

Only a few months ago Etherington-Smith was elected to the vacant post of assistant surgeon to St. Bartholomew's Hospital, and no more popular appointment was ever made. He had already begun to make substantial headway in private practice, and a distinguished future clearly lay before him. As in the past no competitor ever grudged him a victory, so it is certain that everyone would have rejoiced as he went on from success to success. His personality mastered all who came in contact with him. He had every advantage that Nature could give a man—good looks, splendid physique, brains, courage, and self-possession. To these he added perfect modesty and straightness and an engaging good humour. It is tragic beyond words that "Ethel"—as he was affectionately known to all his friends—should have been cut off before his prime. From the day he joined St. Bartholomew's Hospital, he stood out from among his contemporaries as a man of mark. Whether they wished it or not, all were drawn towards him. It was not so much the force of his intellect as the force of his personality. He charmed without conscious effort, and he impressed without the faintest trace of self-importance or conceit. On the river, in the dissecting rooms, or in the wards, he was always the same—strong, cheerful, and encouraging, with a touch of gaiety which disarmed the cynic without at all weakening influence over him.

In his surgical work Etherington-Smith was essentially sound. His temperament was not towards research, but towards activity in many other fields. Everyone felt that a great future was before him, and that he would as certainly become such an ornament to the profession of medicine as he had already become to the world of rowing. His popularity with colleagues, pupils, patients, and friends was simply the reflection of his own attitude towards the world; and the world is greatly the poorer by his death.

An intimate friend and colleague writes:—"Here, indeed, was a man. To know him was to love him. Personal beauty, physical strength, intellectual ability, and moral courage, all were his, gracefully and attractively blended. He was never self-conscious, yet always confident; a magnet ignorant of his magnetism, an Apollo who knew not vanity. Modest and generous, he touched nothing which he did not adorn—

'As the gods loved him, he died young.'

He is gone on. For us a blank remains; for him there are no regrets. In the treasury of our memories he lives, a priceless heirloom."

The funeral took place at Putney Vale Cemetery on the afternoon of April 23rd, after a memorial service at the Church of St. Bartholomew the Great, Smithfield, which was attended by a very large number of friends.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Josephus R. Lemen, formerly professor of respiratory diseases in the University of St. Louis.—Dr. Prince A. Morrow, formerly professor of genito-urinary diseases in the Bellevue Hospital Medical College, New York.—Dr. P. H. Hiss, professor of bacteriology in the Columbian University College of Physicians and Surgeons, New York.—Dr. T. Perrin, *privat-docent* of urology in the University of Lausanne.—Dr. Algernon T. Bristow, clinical professor of surgery in Long Island College Hospital, Brooklyn.—Dr. James L. Thompson, formerly professor of ophthalmology and otology in Indiana University School of Medicine, Indianapolis.—Dr. Rowland G. Curtin, formerly lecturer on Physical Methods of Diagnosis in the University of Pennsylvania, Philadelphia.—Dr. J. G. Egger, medical councillor of Landshut, who was well known for his geological and palæontological researches, at the age of 89.—Dr. Olto, who together with Dr. Neumann, professor of hygiene in Giessen, made many important investigations on the nature of tropical diseases.—Dr. T. E. Moret, extraordinary professor of ophthalmology in the University of Buenos Aires.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Algeria:* Dr. Argaud has been promoted to the chair of Histology.—*Baltimore (University of Maryland):* Dr. J. A. Nydegger has been appointed Lecturer on Diseases of Tropical Countries.—*Basle:* Dr. Redinger, professor of pathological anatomy, who was offered the chair of that subject in the University of Königsberg, has decided to remain in Basle.—*Berlin:* Dr. Georg Levinsohn, *privat-docent* of Ophthalmology, has been granted the title of Professor.—*Göttingen:* Dr. Fritz Eichelberg, *privat-docent* of Psychiatry, has been granted the title of Professor.

SAMARITAN HOSPITAL, BELFAST.—As the result of a recent amateur musical and theatrical entertainment given in the Belfast Hippodrome, a total sum of £212 6*s.* 9*d.* has been handed to the treasurer of the Samaritan Hospital, Belfast, towards the reduction of a debt of £335.

CENTENARIAN.—The late Mrs. Margaret King, who recently died at Southport aged 101 years, was a native of Bristol, and was born there on June 21st, 1811. She was a niece of the Bristol poet, Robert Lovell, who married one of the three sisters, the Misses Fricker of Bath, Southey and Coleridge respectively marrying the other two.

COUNTY OF CORNWALL MEMORIAL TO THE LATE KING EDWARD VII.—The sum of £2588 has been subscribed in Cornwall as a memorial to the late King. Of this, £2500 have been invested to form a fund in aid of hospitals, nursing associations, and sanatoriums in the county. A memorial tablet to King Edward, presented by the committee, was formally unveiled in Truro Cathedral on April 19th.

ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN, BRIGHTON.—The governors of this hospital have decided to name in perpetuity the X ray department "The Louise Sassoon Electrical and X Ray Department," after Miss Louise Sassoon, in consequence of her generosity to that department. The governors feel that the additions to the appliances will be most beneficial to the patients.

THE AFTER-CARE ASSOCIATION.—The annual report of this association shows that during the year ending December, 1912, 391 cases of poor persons discharged as recovered from asylums were dealt with. The total income was £1998. The work done by this society is worthy of the strongest support, as personal care and individual attention are bestowed on each case, and it is the only charity of its kind in the United Kingdom. The offices are at Church House, Dean's-yard, Westminster, S.W.

BRITISH SCIENCE GUILD.—A report has been drawn up by the medical committee of the British Science Guild and adopted by the executive of that association dealing with the Milk and Dairies Bill. The British Science Guild, while regarding the Bill with general approval, find that its largely permissive character will allow local authorities to ignore the powers conferred upon them. They consider that the medical officer of health is placed in an extremely difficult position in having to criticise and possibly to be instrumental in fining persons who can take his appointment away from him. Lord Haldane is the President of the association and the honorary secretaries are Sir Alexander Pedler and Dr. F. Mollwo Perkin (199, Piccadilly, London, W.).

THE METROPOLITAN ASYLUMS BOARD: THE APPOINTMENT OF A BACTERIOLOGIST.—The hospitals committee of the Metropolitan Asylums Board have reported that, in regard to a proposed appointment of a research bacteriologist, it had considered the conditions which the Local Government Board attached to its approval—namely, that the officer should be designated "pathologist," that the appointment should be annual in the first instance, and that at first the officer should not be required to devote his whole time to the Board's service. The committee agreed with the Board as to making the appointment annual in the first instance; it thought, however, that the title of the officer

should be "research pathologist," and it was strongly of opinion that a whole-time officer should be appointed. The committee quoted in support the opinion of the Board's consultative bacteriological adviser, Professor G. Sims Woodhead, who wrote that the pathologist must be able to devote the whole of his time, thought, and energy to the solution of problems which had hitherto baffled many men giving their whole attention, though, perhaps, under less favourable conditions than those under which the proposed officer would work. It was decided to place these views before the Local Government Board.

UNIVERSITY ON MANCHESTER.—The committee of the Ashby Memorial Scholarship has decided, instead of selecting a subject for research this year, that candidates shall on application for the scholarship propose their own subjects. The scholarship was founded for the promotion of the study of diseases of children, and the research proposed must be in this subject. The award of the scholarship will be made early in July. Applications may be sent to the registrar on or before June 30th. The announcement of an award previously made was due to an oversight as regards the regulations as to dates. Owing to the early date of Whitsuntide the examinations for entrance scholarships and exhibitions will begin on May 19th next and be continued on succeeding days.

THE *Liverpool Daily Post and Mercury* has succeeded in collecting £2000 in ten days for the purpose of supplying radium for the treatment of cancer at the Liverpool Royal Infirmary.

THE SEVENTEENTH INTERNATIONAL CONGRESS OF MEDICINE, 1913.

SECTION OF SURGERY.

THE Surgical Section is under the presidency of Sir W. Watson Cheyne, Bart., F.R.S., and is connected with the subsections of Orthopædics, presided over by Mr. Robert Jones, of Liverpool, and Anæsthetics, with Dr. Dudley Buxton in the chair. The meetings of the principal section will be largely attended, and will take place in the large Lecture Theatre on the ground floor of the Imperial College of Science and Technology.

The list of set subjects for discussion are: 1. The Operative Treatment of Malignant Disease of the Large Intestine, excluding the Rectum, introduced by Professor Bastianelli, of Rome, and by Professor Körte, of Berlin. 2. A discussion conjointly with the Section of Neuropathology on the Treatment of Tumours of the Brain and the Indications for Operation. Professor Bruns, of Hannover; Professor Harvey Cushing, of Harvard University; Professor von Eiselsberg, of Vienna, and Dr. Howard Tooth will speak. 3. A discussion on the Diagnosis and Treatment of Early Renal and Vesical Tuberculosis will be held jointly with the Section of Urology. It will be introduced by Professor Legueu, of Paris; by Professor Rochet, of Lyons; and by Dr. Wildbolz, of Berne. 4. The Surgery of the Arterial System will be reported upon by Professor Matas, of New Orleans, and by Professor Oppel, of St. Petersburg. 5. Intrathoracic Surgery will be considered on the last day of the Congress by Professor Sauerbruch, of Zürich, and Professor Tuffier.

Papers will also be read by individual members. Many have already been received, but it is noteworthy that they all come from abroad, and no English surgeons have yet offered any contribution. There seems, too, to be some ill-defined idea that the section is a gathering of London surgeons who are inviting their colleagues from other countries. This is in no sense true. It is the surgeons of the United Kingdom who are endeavouring to make an international congress as truly representative of British surgery as is possible. The vice-presidents, the council, and the secretaries of the section have been chosen, therefore, with a due regard to representation of surgery in England Scotland, Ireland, and His Majesty's overseas dominions.

The sectional work of the social side of the Congress is also in an advanced state of preparation, thanks largely to the energy of an influential ladies' committee under the direction of Lady Watson Cheyne. It is proposed, amongst other things, that a party of 100 surgeons and their wives shall be shown round the University of Cambridge on Saturday, August 9th, where they will be received by Mr. Howard Marsh, the Master of Downing College, who is also professor of surgery in the University. By the kind permission of the Master and Warden of the Company there will be a personally conducted party of 70 surgeons and their wives or daughters to Barbers' Hall, which is situated in the heart of the City of London and is rarely accessible to visitors. The hall is interesting from its historical associations as well as its architecture and art treasures. It has remained on the same spot for at least 900 years, and thus represents the cradle of English surgery. No sectional dinner will be held, but this omission will be more than supplied by the offers of private hospitality which have already been received. The Hon. W. F. D. and the Lady Esther Smith have invited members of the section to a garden party at Henley, and the ladies' committee will hold an afternoon reception in the Botanical Gardens.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Housing of the Working Classes Bill.

IN the House of Commons on Friday, April 18th, the second reading of the Housing of the Working Classes Bill was carried. It follows the lines of the measure brought in last year by Sir A. GRIFFITH BOSCAWEN. A special department of the Local Government Board is proposed to be created for the purpose of seeing that the Housing Acts are enforced. Grants to the amount of £1,000,000 are also suggested in order to aid in erecting suitable dwellings. Mr. BURNS, the President of the Local Government Board, declined to devote public money in this direction but was willing that the Bill should be allowed to proceed to a committee in order that its administrative provisions might be examined.

The Medical Officers of Health Superannuation Bill.

The council of the Royal Sanitary Institute is petitioning Parliament in favour of this Bill, which has been introduced by Sir PHILIP MAGNUS, believing that it would tend to the better administration of the Public Health Service if superannuation were provided for public health officers.

The Select Committee on Patent Medicines.

The Select Committee on Patent Medicines of the House of Commons had a further meeting on Thursday, April 17th. Evidence from the standpoint of the owners of proprietary medicines was submitted.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 16TH.

Medical Contracts in Scotland.

Major HOPE asked the Secretary to the Treasury whether he would advise the present Scottish Provisional Insurance Committees to avoid, as far as possible, entering into contracts for provision of medical benefit which were binding for a long period beyond July 14th, 1913, especially when the proposed arrangements were contrary to the expressed wishes and representations of the Approved Societies and insured persons chiefly concerned, seeing that they would not be fully represented in accordance with Section 59 of the National Insurance Act until the new committees were constituted under Regulation No. 22 of the Scottish Insurance Commissioners.—Mr. ROBERTSON (on behalf of Mr. MASTERMAN) replied: I see no reason to adopt the course proposed. The Scottish Insurance Commissioners have received no objections to the present Insurance Committees making contracts for medical attendance extending beyond the date mentioned.

Major HOPE: May I give an instance where insured persons are relieved by the action of the Insurance Committee in making a contract up to the end of January?—Mr. ROBERTSON: Yes, if the honourable and gallant gentleman will be so good.

Motor Ambulances.

Sir JOHN RANDLES asked the Chancellor of the Exchequer whether he would avail himself of the opportunity offered by the forthcoming Finance Bill to amend the law, to which he referred in his reply to a question of Oct. 16th, 1912, as regards the tax on motor spirit used for motor ambulances to convey patients to hospitals and infirmaries.—Mr. ROBERTSON (for Mr. LLOYD GEORGE) answered: My right honourable friend has not overlooked the undertaking referred to, and he hopes to be able to give statutory effect to it.

The Health of Naval Cadets.

Major GASTRELL asked the Civil Lord of the Admiralty whether anything had been done to eradicate the danger of disease at the Royal Naval College, Osborne; and whether, if nothing could be done to discover the cause of the unhealthiness of the college, he would consider the possibility of its removal to a more healthy site.—Mr. G. LAMBERT replied: It is the constant care of the Admiralty to guard against the occurrence of disease at the Royal Naval College, Osborne, and as at present advised they are not prepared to admit the assumption in the latter part of the honourable and gallant Member's question.

Major GASTRELL: Is the right honourable gentleman aware that there are a number of cases of illness there at present, and that it has been considered advisable to send many boys home?—Mr. LAMBERT: The age at which the boys enter Osborne, I am informed, rather induces them to develop these somewhat youthful diseases.

Lord CHARLES BERESFORD: Is it not a fact that these epidemics are very constant at Osborne and more constant than in ordinary schools of public instruction in the country, and can he see his way to do something to alter that position?—Mr. LAMBERT: This question is under the constant care of the Admiralty. I understand that boys when they enter Osborne at 12½ years of age are peculiarly susceptible to these diseases.

Lord CHARLES BERESFORD: Will the honourable gentleman answer my question? Are not epidemics at Osborne more constant than they are in the ordinary public schools of the country?—Mr. LAMBERT: Not if you take the age at which the boys enter into consideration. I shall be very happy to consider any information which the noble lord can give me.

Preservatives in Cream.

Mr. CHARLES BATHURST asked the President of the Local Government Board whether his attention had been drawn to the action of the Westminster City Council in threatening proceedings under Section 3 of the Sale of Food and Drugs Act, 1875, against retail dealers and stores, in respect of the sale of preserved cream containing less than 22 grains of boracic acid to the pint, on the ground of injury to health; and, whether, seeing that Dr. Hamill, the medical inspector of the Board, recommended in a recent report to the Board, after elaborate inquiry, that a quantity up to 28 grains might be permitted in the summer months without injury to health, the Board would issue a circular advising local authorities that no proceedings ought to be taken provided sales were made in compliance with the recently published regulations and where the quantity of preservative did not exceed Dr. Hamill's recommendation.—Mr. BURNS said in reply: The answer to the first question is in the affirmative. I do not consider it is necessary, at any rate at the present stage, to issue such a circular as the honourable Member indicates.

Rural Housing.

Lord HENRY CAVENDISH-BENTINCK asked the President of the Local Government Board whether his attention had been directed to the report of Dr. Webb to the Kingsbridge (Devon) rural district council, where he stated that one-eighth of the cottages in the district were unfit for human habitation, but that there was nowhere for the people to go if these were condemned; that a discussion took place, but no action was taken by the council; and what action he intended to take in the matter.—Mr. BURNS answered: I have not yet received the report of the medical officer of health for the Kingsbridge rural district for the year 1912, and the latest report in my possession did not indicate the existence of any such unsatisfactory conditions as to render necessary action on my part. I will look into the matter.

Lord HENRY CAVENDISH-BENTINCK asked the right honourable gentleman whether his attention had been called to the report of the medical officer of health for the Sedgefield rural district council in respect to houses at Trimdon Grange and Trimdon Colliery, where he stated that after inspection of 63 houses he found all but six unfit for human habitation on account of bad sanitation and ventilation, and recommended to the council that closing orders should be issued and that the council should erect new dwellings for the people displaced, and that the rural district council resolved to apply for closing orders but referred the question of the erection of new cottages to the Trimdon sanitary committee; and whether he would state what steps had been taken to accommodate the tenants thus displaced.—Mr. BURNS replied: The council decided in January last to build 25 houses, and applied to the Local Government Board for sanction to a loan for the purpose, but they have not yet furnished the particulars necessary before the application can be further dealt with. I am sending a further letter to them on the subject.

Lord HENRY CAVENDISH-BENTINCK asked the right honourable gentleman whether his attention had been called to a special report of the housing committee appointed by the Ramsbury (Wilts) rural district council, which stated that out of 52 cottages in the village of Axford ten had one bedroom only, whilst only seven had three bedrooms; that five cottages were overcrowded, three unfit for habitation, seven were dilapidated, and 26 needed general repairs; and that, while the Ramsbury rural district council admitted the need for more cottages, they had decided to defer action in regard to building; and whether he intended to take any steps in the matter.—Mr. BURNS said in reply: I have been in communication with the Ramsbury rural district council in regard to the need for the erection of cottages at Axford for some time, and on the 31st ultimo the chairman had an interview at the Local Government Board in regard to it. The matter will not be lost sight of.

Lord HENRY CAVENDISH-BENTINCK asked the right honourable gentleman whether his attention had been directed to the report of the medical officer of health for Cornwall, in which he stated that the problem of consumption was largely the problem of housing, yet bad housing was suffered to continue; that housing in Cornwall constituted one of the greatest barriers to sanitary progress; that many cottages had no backyards and no sanitary conveniences; that many local authorities had not yet adopted housing schemes where it had clearly been their duty to do so; that Dr. Burnet further reported a dearth of houses in eight of the 16 rural districts of the county—namely, Boscastle, Camelford, Liskeard, St. Colomb, St. Austell, Truro, East Kerrier, and West Penwith—whilst it was stated in regard to the Bodmin rural district area that many houses should be condemned absolutely, as they rendered their occupants much disposed to phthisis; and whether he would state what action, if any, had been taken with regard to these areas.—Mr. BURNS replied: I have seen the report for 1911, and note that the county medical officer of health is fully alive to the powers of the county council under Sections 10, &c., of the Housing, Town Planning, &c., Act, 1909. I am keeping an eye on these districts in connexion with the reports of the local medical officers of health for 1912, which I am now receiving, and I am with the county medical officer of health in hoping that it may not be necessary for the county council to use their powers under the sections.

Mr. C. DUNCAN: Can the right honourable gentleman bring pressure to bear upon these local authorities?—Mr. BURNS: We are consistently doing that.

Supply of Government Calf Lymph.

Mr. COURTHOPE asked the President of the Local Government Board whether, in view of the difficulty in obtaining calf lymph of as good quality as the Government vaccine and of the undesirability of persons of independent means receiving vaccination at the public expense, he would allow medical practitioners to purchase Government vaccine for use upon their private patients.—Mr. BURNS wrote in reply: This matter has been considered by the Local Government Board on more than one occasion, but they have not hitherto found it practicable to take action in the direction suggested.

THURSDAY, APRIL 17TH.

Sleeping Sickness South of the Zambesi.

Answering Mr. GINNELL, Mr. L. HARCOURT said that there was no reason to suppose that sleeping sickness was generally prevalent south of the Zambesi.

MONDAY, APRIL 21ST.

Medical Panels in Ireland.

Sir JOHN LONSDALE asked the Secretary to the Treasury to state in which counties and county boroughs in Ireland panels of doctors had been formed in connexion with the National Insurance Act; and to explain why circulars were issued by the Irish Insurance Commissioners stating that panels had been formed in every county and county borough in Ireland when panels had not been formed in many cases.—Mr. MASTERMAN replied: I am informed by the Irish Insurance Commissioners that no such circulars as are referred to in the question have been issued by the Commissioners. I understand the honourable baronet to refer to a paragraph in a specimen copy of a form that is intended to be used when the panel system is working, which was issued to doctors for the purpose of explaining their duties under the panel system. That it was not intended as a statement that panels had already been formed is shown not only by the character of the form, but by the fact that it was issued to the doctors, who alone received it, before the date by which they were asked to have sent in their names for the panels. I am informed by the Commissioners that sufficient doctors have already intimated their willingness to serve to enable panels to be formed in the following areas:—County boroughs: Belfast, Cork, Londonderry. Counties: Antrim, Armagh, Clare, Cork, Donegal, Down, Fermanagh, Londonderry, Longford, Mayo, Monaghan, and Sligo.

Certification Rates under National Insurance Act in Ireland.

Sir JOHN LONSDALE asked the Secretary to the Treasury whether he was aware that the conjoint committee of the Irish Medical Association and British Medical Association received a definite pledge that a minimum capitation rate of 2*s.* 6*d.* would be provided for certification in the event of medical benefits for Ireland being deleted from the National Insurance Act; and if whether, in redemption of this pledge, he intended to make a further grant to enable the Irish Commissioners to meet the financial difficulties in the way of the efficient working of the Act in Ireland.—Mr. MASTERMAN replied: The answer to the first part of the question is in the negative. The second does not therefore arise.

TUESDAY, APRIL 22ND.

Free Choice of Medical Men.

Sir J. D. REES asked the Secretary to the Treasury whether the Bill to amend the Insurance Act would provide for free contracting out, for real choice of medical attendant, and for exclusion of married women outworkers.—Mr. MASTERMAN said in reply: The answer is in the negative. The first and third proposals of the honourable gentleman are open to the gravest objections, and the second is already provided for in the existing Act.

Viscount VALENTIA asked the right honourable gentleman whether he was aware that much indignation was felt by a considerable number of railway employees resident in the city of Oxford who were unable to avail themselves, under the provisions of the National Health Insurance Act and subsequent regulations relating thereto, of the services of a doctor who had for years attended them, and who, though willing to go upon the panel in respect of these patients and having obtained the consent of the Insurance Committee to do so, was precluded by the intervention of the panel doctors, in spite of his frequent assurances that every insured person had a right to choose his own doctor; and would he take steps to provide for the services of the doctor hitherto employed by these men being made available for them.—Mr. MASTERMAN answered: I have made inquiries of the Oxford Insurance Committee on this case. Acceptance of a limited number of insured persons by a doctor on the panel is only possible where attendance by doctors on the panel is assured for all insured persons in the area, and therefore can only be granted by an Insurance Committee with the consent of the doctors on the panel. The responsibility for treatment of the insured persons must be a collective one, and no one doctor can be allowed to select good lives amongst insured persons with the same remuneration per head as those who would accept a general average.

Insured Persons and Change of Medical Men.

Mr. JOHN TAYLOR asked the Secretary to the Treasury whether he was aware that a certain number of insured persons connected with the lodges of the Durham Miners' Association were desirous of changing their doctor; that, when they signed for their present doctors, it was on the understanding that it held good for three months only; and that objection was now taken by the Insurance Commissioners to the transfer on the ground that the present arrangements held good for 12 months; and whether he would inquire into the matter with a view to the initial understanding being adhered to and the men being allowed to make the change of doctor desired.—Mr. MASTERMAN said in reply: My attention has been drawn to the matter to which my honourable friend refers, and I am investigating the circumstances referred to. In general, insured persons may change their doctors within the year either by consent of doctor and patient or by consent of the Insurance Committee on complaint of the medical treatment received.

WEDNESDAY, APRIL 23RD.

Contributions to Medical Aid Associations.

Captain KNIGHT asked the Secretary to the Treasury whether there was any obligation on County Health Committees to make payments, in advance or otherwise, to medical aid associations, approved under the Act, on account of members of Approved Societies who desired to take their medical benefit through such associations; and, if so, whether such payments ought to be made on the same dates as those made to panel doctors.—Mr. MASTERMAN wrote in reply: An Insurance Committee may contribute towards the expenses of the treatment furnished by an approved institution to insured persons who are

members of the institution. Before making any contribution towards the expenses of the treatment furnished by any approved institution the Insurance Committee will have to satisfy itself as to the cost of the treatment furnished by the institution by inspection of the audited accounts, or such other evidence as may be considered necessary. Subject to this and to a guarantee that the rules of the institution will comply with the medical regulations and the conditions of the Parliamentary grant, it will be open to the Insurance Committee to make payments on account of the sum to be ultimately contributed to the institution on any date that may be convenient.

BOOKS, ETC., RECEIVED.

ARROWSMITH, J. W., LIMITED, Bristol. SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.

Nervous Breakdowns and How to Avoid Them. By Charles D. Musgrove, M.D.

BAILLIÈRE, J. B. ET FILS, Paris.

Les Épanchements du Péricarde. Étude Clinique et Thérapeutique. La Ponction épigastrique de Marfan. Par le Docteur Germain Blechmann, Ancien Interne en Médecine des Hôpitaux de Paris. Price not stated.

Nouveau Traité de Chirurgie Clinique et Opératoire. Publié en fascicules sous la Direction de A. Le Dentu et Pierre Delbet. XXXIII. Chirurgie Générale et Chirurgie Orthopédique des Membres. Par Pl. Mauclaire, Professeur Agrégé à la Faculté de Médecine, Chirurgien de la Charité. Price, paper, Fr. 10; boards, Fr. 11.50.

BAILLIÈRE, TINDALL, AND COX, London.

Nursery Notes for Mothers. By C. Willett Cunnington, M.B., B.C. Price 2s. 6d. net.

Diagnosis of Bacteria and Blood-Parasites. By E. P. Minett, M.D., D.P.H., D.T.M. & H., M.R.C.S., L.R.C.P., Assistant Government Medical Officer of Health and Bacteriologist, British Guiana. Second edition. Price 2s. 6d. net.

BALE (JOHN), SONS AND DANIELSSON, LIMITED, London.

Collected Papers reprinted from the Journal of the Royal Army Medical Corps. Volume I. December, 1912. Price not stated.

"Verb. Sap." on Going to West Africa, Northern Nigeria, Southern, and to the Coasts. By Capt. Alan Field, F.R.G.S. Price 2s. 6d. net.

The Practitioner's Vade Mecum (P.V.M.) or How to Cut the Drug Bill. By A. Herbert Hart, M.S., Doctor of Medicine of the University of Durham. Third or National Insurance Edition. Price 2s. 6d. net.

A Compendium of Aids to First Aid. By N. Corbet Fletcher, B.A., M.B., B.C. Cantab., M.R.C.S. With an Introduction by James Cantlie, M.A., M.B., F.R.C.S. Price 6d. net.

The Relations of the Lachrymal Organs to the Nose and Nasal Accessory Sinuses. By Prof. Dr. A. Onodi, Director of the Rhino-laryngological Clinic in the University of Budapest. English Translation by Dr. Dan Mackenzie, London. Price 8s. 6d. net.

CHAPMAN AND HALL, LIMITED, London.

The Night Nurse. By the Author of "The Surgeon's Log." Price 6s.

CHURCHILL, J. AND A., London.

Allen's Commercial Organic Analysis. Volume VII. By the Editors and the following Contributors: E. Frankland Armstrong, G. C. Jones, A. E. Taylor, G. Barger, J. A. Mandel, Herbert Philipp. Fourth edition. Entirely rewritten. Edited by W. A. Davis, B.Sc., A.C.G.I., and Samuel S. Sadtler, S.B. Price 21s. net.

The Difficulties and Emergencies of Obstetric Practice. By Comyns Berkeley, M.A., M.D., B.C. Cantab., F.R.C.P. Lond., M.R.C.S. Eng., and Victor Bonney, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng., M.R.C.P. Lond. Price 24s. net.

COLLINGRIDGE, W. H. AND L., City Press Office, Aldersgate-street, London, E.C.

The City of London Year Book and Civic Directory for 1913. Price 5s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ALLEN, MARIA SHEPHERD, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed House Surgeon at the Tiverton (Devon) Hospital.

BURD, GEORGE VANHOUSE, L.R.C.P., L.M. Edin., M.R.C.S., has been reappointed District Medical Officer by the Okehampton (Devon) Board of Guardians.

CARTER, F. BOLTON, M.D., M.S. Lond., F.R.C.S. Eng., has been appointed Honorary Surgeon to the Leicester Royal Infirmary.

DAWNAY, A. H. PAYAN, F.R.C.S. Eng., has been appointed Surgeon to the Western Ophthalmic Hospital, Marylebone-road, W.

FELLS, ARTHUR, M.B., C.M. Edin., F.R.C.S. Edin., has been appointed Honorary Surgeon to the Bristol Eye Dispensary.

HOWELL, B. WHITCHURCH, M.R.C.S., L.R.C.P. Lond., has been appointed House Surgeon at the Royal Free Hospital.

HUGHES, WILLIAM STANLEY, M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Superintendent of the Salop County and Wenlock Borough Asylum.

LOCKYER, CUTHBERT, M.D., B.S. Lond., F.R.C.S. Eng., has been appointed Surgeon to In-patients at the Samaritan Free Hospital for Women.

LYON-MERCADO, MARY, L.R.C.P. & S. Edin., has been appointed Junior Obstetric Assistant to the Royal Free Hospital.

MCSWINEY, S. A., M.B., B.S. N.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Swords District of the county of Dublin.

PANNETT, C. A., M.D., B.S. Lond., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Royal Free Hospital.

RANSOM, P. W., M.R.C.S., L.R.C.P. Lond., has been appointed House Physician at the Royal Free Hospital.

RICHARDS, MAUDE M., M.B., B.S. Lond., has been appointed House Surgeon at the Royal Free Hospital.

ROWNTREE, CECIL, M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Surgeon to St. Barnabas Home, Lloyd-square.

SHAW, W. V., M.D. Oxon., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Malton District of the county of York.

STALKER, W. S., M.B., Ch.B. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Swinton District of the county of Lancaster.

TURNER, CATHERINE V., M.B., B.S. Lond., has been appointed House Physician at the Royal Free Hospital.

YELF, R. E. B., M.B., Ch.B. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Moreton-in-Marsh District of the county of Gloucester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERYSTWYTH INFIRMARY AND CARDIGANSHIRE GENERAL HOSPITAL.—House Surgeon and Secretary. Salary £150 per annum, with board and washing.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BELFAST, QUEEN'S UNIVERSITY.—Lectureship in Ophthalmology and Otology.

BIRKENHEAD BOROUGH HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with board and laundry.

BIRKENHEAD EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £300 per annum.

BIRKENHEAD UNION INFIRMARY AND WORKHOUSE.—Senior Resident Assistant Medical Officer. Salary £130 per annum, with board, apartments, &c.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Third House Surgeon. Salary £75 per annum, with board, rooms, &c.

BIRMINGHAM, RUBERY HILL ASYLUM.—Junior Assistant Medical Officer. Salary £175 per annum, with apartments, board, and washing.

BIRMINGHAM, WEST HEATH HOSPITAL AND SANATORIUM.—Medical Superintendent. Salary £300 per annum, with board and residence.

BIRMINGHAM, YARDLEY ROAD SANATORIUM.—Senior Assistant Medical Officer. Salary £250 per annum, with board and residence. Also Junior Assistant Medical Officer. Salary £200 per annum, with board and residence.

BRADFORD, CITY OF.—Medical Officer of Health, Salary £800 per annum.

BRADFORD EDUCATION COMMITTEE.—Two Assistants (male and female) to the School Medical Officer. Salary £350 per annum each. Also School Dentist. Salary £300 per annum.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried, for six months. Salary at rate of £100 per annum, with board, lodging, and washing.

BRISTOL, COSSHAM MEMORIAL HOSPITAL, Kingswood.—House Surgeon. Salary £50 per annum, with board, lodging, and washing.

BRISTOL GENERAL HOSPITAL.—First House Physician, Second House Physician, and Casualty House Surgeon, all for six months. Salary £80 per annum, with board, residence, &c.

BRISTOL, NORDRACH-UPON-MENDIP SANATORIUM, Blagdon.—Assistant Medical Officer. Salary £150 and all found.

BRISTOL ROYAL INFIRMARY.—Obstetric and Ophthalmic House Surgeon for six months. Salary at rate of £75 per annum, with board, laundry, and apartments.

BROMSGROVE, WORCESTERSHIRE ASYLUM.—Second Assistant Medical Officer. Salary £200 per annum, with quarters, board, washing, and attendance.

BURTON-ON-TRENT INFIRMARY.—House Surgeon. Salary £120 per annum, with rooms, board, coal, and light.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, and laundry.

BUXTON, DEVONSHIRE HOSPITAL, Derbyshire.—Assistant House Physician for six months. Salary £100 per annum, with apartments, board, and laundry.

CANTERBURY BOROUGH ASYLUM.—Assistant Medical Officer, unmarried. Salary £160 per annum, with board, lodging, washing, and attendance.

CARDIFF, ROYAL HAMADRYAD SEAMEN'S HOSPITAL.—Medical Superintendent. Salary £250 per annum, together with residence, firing, and lights.

CHELTENHAM GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and lodging.

CHICHESTER, WEST SUSSEX COUNTY ASYLUM.—Locum Tenens Medical Officer for four months, unmarried. Salary 4 guineas per week, with apartments, board allowance, and washing.

DENBIGH, DENBIGHSHIRE INFIRMARY.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

DENBIGH, NORTH WALES COUNTIES ASYLUM.—Medical Superintendent. Salary £500 per annum, with house.

DERBY, DERBYSHIRE ROYAL INFIRMARY.—House Physician. Salary at rate of £100 per annum, with apartments, board, &c.

DUBLIN, PEAMOUNT SANATORIUM, Hazelhatch.—Resident Medical Superintendent. Salary £400 per annum.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, with board and washing.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—House Physician and Assistant Casualty Officer for six months. Salary at rate of £75 per annum, with board, residence, and laundry.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.—House Surgeon for six months. Salary at rate of £75 per annum, with board, residence, and washing.

EXETER, ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, apartments, and washing.

EXMINSTER, DEVON COUNTY ASYLUM.—Fourth Assistant Medical Officer. Salary £130 per annum.

GRIMSBY AND DISTRICT HOSPITAL.—Senior House Surgeon and Junior House Surgeon. Salary £100 and £80 per annum respectively, with board, lodging, attendance, and washing.

HALIFAX, ROYAL HALIFAX INFIRMARY.—Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing.

HASTINGS, EAST SUSSEX HOSPITAL.—Senior House Surgeon. Salary £100 per annum, with residence, board, and washing. Also Assistant House Surgeon. Salary at rate of £70 per annum, with residence, board, and washing.

HELLINGLY, EAST SUSSEX COUNTY ASYLUM.—Third Assistant Medical Officer, unmarried. Salary £200 per annum, with board, apartments, washing, and attendance.

HEMEL HEMPSTEAD, WEST HERTS HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with rooms, board, and washing.

ITALIAN HOSPITAL, Queen-square, W.C.—Honorary Anæsthetist.

LANCASTER ROYAL INFIRMARY.—House Surgeon, unmarried. Salary £110 per annum, with residence, board, attendance, and washing.

LARBERT, STIRLING DISTRICT ASYLUM.—Assistant Medical Officer (female). Salary £100 per annum, with board, &c.

LEAMINGTON SPA, WARNEFORD, LEAMINGTON, AND SOUTH WARWICKSHIRE GENERAL HOSPITAL AND MIDLAND COUNTIES BATHING INSTITUTION.—House Physician. Salary £85 per annum, with board, residence, and laundry.

LEEDS HOSPITALS FOR INFECTIOUS DISEASES AND TUBERCULOSIS.—Fourth Assistant Medical Officer for six months, unmarried. Salary at rate of £120 per annum, with board, lodging, and washing.

LEICESTER ROYAL INFIRMARY.—Assistant Honorary Surgeon. Also Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, apartments, and washing.

LIVERPOOL EYE AND EAR INFIRMARY, Myrtle-street.—House Surgeon. Salary £80 per annum.

LIVERPOOL, PARK HILL SANATORIUM.—Resident Medical Superintendent, unmarried. Salary at rate of £350 per annum, with board, residence, and washing.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W.—Medical Registrar. Salary at rate of 40 guineas per annum.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £120 per annum, with rooms, attendance, board, and washing.

MANCHESTER CHILDREN'S HOSPITAL (Out-patients' Department), Gartside-street.—Assistant Medical Officer for six months. Salary £25.

MANCHESTER ROYAL INFIRMARY AND DISPENSARY.—Honorary Assistant Physician.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary at rate of £85 per annum, with board, residence, and laundry.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.—Surgeon Laryngologist.

NESTING AND LUNNASTING PARISH COUNCIL.—Medical Officer. Salary £50 per annum.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon. Salary £170. Also Resident and Assistant Resident Surgeons for Branch. Salaries £180 and £170 per annum respectively, with apartments, attendance, light, and fuel.

OLDHAM ROYAL INFIRMARY.—Third House Surgeon for six months. Salary at rate of £80 per annum, with residence, board, and laundry.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—House Physician, unmarried, for six months. Salary at rate of £80 per annum, with board, &c.

OXFORD, WARNEFORD MENTAL HOSPITAL.—Assistant Medical Officer. Salary £150 per annum, with apartments, board, attendance, and laundry.

PORTSMOUTH, ROYAL PORTSMOUTH HOSPITAL.—Two House Surgeons. Salary at rate of £75 per annum each, with board, &c.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

READING, ROYAL BERKSHIRE HOSPITAL.—Second House Surgeon for six months. Salary £80 per annum, with apartments, board, and washing.

REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, residence, washing, &c.

RICHMOND, SURREY, ROYAL HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with board and apartments.

ROCHDALE INFIRMARY.—Second House Surgeon, unmarried. Salary £100 per annum, with board, residence, and laundry.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 per annum, with board, lodging, and washing.

ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C.—Third House Surgeon. Salary at rate of £50 per annum, with board and residence.

ST. ALBANS, MIDDLESEX COUNTY ASYLUM, Napsbury.—Junior Assistant Medical Officer. Salary £200 per annum, with board, lodging, washing, and attendance.

ST. BARTHOLOMEW'S HOSPITAL.—Chief Assistant in X Ray Department.

ST. MARYLEBONE INFIRMARY, Rackham-street, Notting Hill, W.—First and Second Assistant Resident Medical Officers, unmarried. Salaries £150 and £100 per annum respectively, with apartments, rations, and washing.

ST. MARY'S HOSPITAL, London, W.—Senior Ophthalmic Clinical Assistant. Salary at rate of £50 per annum.

ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES, Red Lion-square, Holborn.—Honorary Assistant Surgeon.

SCARBOROUGH HOSPITAL AND DISPENSARY.—Senior House Surgeon. Salary £100 per annum, with residence, board, &c.

SHEFFIELD, JESSOP HOSPITAL FOR WOMEN.—Senior and Assistant House Surgeons, unmarried. Salaries £80 and £60 per annum respectively, with board, residence, and laundry.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £80 per annum, with board, lodging, and washing.

SOUTHAMPTON, FREE EYE HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £80 per annum, with rooms, board, and washing.

SOUTH AFRICA LUNATIC AND LEPER ASYLUM SERVICE.—Junior Medical Officer, unmarried. Salary £280 per annum, with quarters.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Junior House Surgeon. Salary £90 per annum, with residence, board, and washing.

SOUTHWARK UNION INFIRMARY, East Dulwich Grove, S.E.—Two Assistant Medical Officers. Salary £120 per annum each, with board, lodging, and washing.

STOCKTON-ON-TEES, STOCKTON AND THORNABY HOSPITAL.—House Surgeon, unmarried. Salary £180 per annum, with residence, board, and washing.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £120 per annum, with board, lodging, and washing.

SUTTON, SURREY, BANSTEAD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £170 per annum, with board, apartments, and washing.

SWANSEA GENERAL AND EYE HOSPITAL.—House Surgeon. Salary £75 per annum, with board, washing, and attendance.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with rooms, board, and washing.

TYNEMOUTH, COUNTY BOROUGH OF.—Clinical Tuberculosis Officer and Assistant Medical Officer of Health. Salary £350 per annum.

WEST BROMWICH AND DISTRICT HOSPITAL.—Assistant Resident House Surgeon and Anæsthetist, unmarried. Salary £75 per annum, with board, residence, and washing.

WESTERN GENERAL DISPENSARY, Marylebone-road, N.W.—Honorary Physician.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, PARALYSIS, AND EPILEPSY, 73, Welbeck-street, W.—Resident House Physician for six months. Salary at rate of £50 per annum. Also Clinical Assistants to Out-patients.

WEST HAM AND EASTERN GENERAL HOSPITAL.—Junior House Physician. Salary at rate of £75 per annum, with board, residence, and washing.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Surgeon. Salary £80 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Resident Medical Officer. Salary at rate of £100 per annum, with board, rooms, and laundry.

WOODFORD BRIDGE, ESSEX, CLAYBURY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £170 per annum, with board, apartments, and washing.

YORK DISPENSARY AND MATERNITY HOSPITAL.—Resident Medical Officer, unmarried. Salary £140 per annum, with board, lodging and attendance.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Clonaslee, Queen's County.

Births, Marriages, and Deaths.

BIRTHS.

CARMICHAEL.—On April 17th, at The Elms, East Hill, Wandsworth, S.W., the wife of Henry Carmichael, M.B., C.M., of a son.

HALL.—On April 16th, at Brunswick-square, Hove, Brighton, the wife of Donald G. Hall, M.A., M.D. Cantab., M.R.C.P. Lond., of a son.

SINGTON.—On April 21st, at 167, Gloucester-terrace, Hyde Park, W., to Dr. and Mrs. H. S. Sington, a daughter.

MARRIAGES.

SMITH—WHEELER-BYLES.—On Monday, April 21st, at St. Margaret's Church, Westminster, by the Right Honourable and Right Reverend the Lord Bishop of London, D.D., assisted by the Rev. J. L. Evans, M.A., Vicar of Holy Trinity Church, Kingsway, Professor William Robert Smith, M.D., D.Sc., LL.D., F.R.S. Ed., D.L. and J.P. for the County of London, to Frances Wheeler, widow of the late Robert Henry Byles, of Stockton-on-Tees.

WARD—LUZZI.—On April 17th, at the Waldensian Church, Florence, Ronald Francis Campbell Ward, M.A., M.D. Cantab., to Nella, second daughter of the Rev. Professor G. Luzzi, D.D., of Florence.

DEATHS.

EDWARDS.—On April 17th, at Tudor House, Sawston, Frank Edwards, L.R.C.P. & S., L.S.A., aged 66 years. No flowers.

ETHERINGTON-SMITH.—On April 19th, at St. Bartholomew's Hospital, after a very brief illness, Raymond Broadley Etherington-Smith, M.A., F.R.C.S.

LILLIE.—On April 17th, at a nursing home, suddenly, Cecil Firmin Lillie, M.D., aged 40 years.

MCLAREN.—On April 18th, at Villa Ste. Anne, Antibes, Agnes McLaren, M.D.

MILLIGAN.—On April 17th, at De Parys-avenue, Bedford, William Wright Milligan, L.R.C.P. & S. Edin., in his 72nd year.

WELLS.—On April 16th, at Wonford House, Exeter, James Wells, M.R.C.S., aged 68 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE PROFESSIONAL ASPECT OF MISSIONARY HOSPITALS.

MISSION hospitals may be regarded as in some sort the outposts of medical science, for they often afford opportunities for observing disease under conditions that exclude some of the obscuring factors incidental to the observation of the same diseases in the complex environment of civilised life. For this reason a tentative report of the professional work of the Tainan Hospital, Formosa (Medical Report of the Tainan Hospital, English Presbyterian Mission, Formosa, 1912), by the medical staff—Dr. James L. Maxwell and Dr. G. Gushue-Taylor—is welcome. It is a modest little pamphlet, hardly suggesting the value of some of the observations it contains. It is based on a study of the hospital in-patients alone, who in 1912 numbered 2734. One-third of these were eye cases, and for the most part call for no special notice, but a case of interest was that of a young man with an enchondroma of the frontal sinus, the size of a golf ball, which had pushed the orbital plate downwards, displacing the eyeball downwards and outwards to an extreme degree, without seriously impairing the visual power, however. After shelling out the tumour it was found that the lower wall of the frontal sinus prevented the return of the eyeball. The bone was chipped away, and in a few months the eye appeared quite normal in both vision and movements. An observation on tuberculosis is also very interesting, in view of the division made by many observers between the clinical manifestations in the human of the bovine and the human bacillus respectively; for while beef is never eaten and fresh milk almost never used in that locality, tuberculosis is very rife in all its known forms. In nearly every hospital case an examination of the stools was made. Ankylostomum infection was found in about 20 per cent. of the whole, but it rose to 40 per cent. in farmers and to nearly 100 per cent. in market gardeners. Ankylostomiasis, however, was present in only about 10 per cent. of those affected by the worm. Beta-naphthol, which is far less toxic than thymol, gave the authors the best results. A condition far from rare, and one not mentioned in text-books on tropical medicine (unless it is to be regarded as a form of Banti's disease), is one in which the spleen and liver are enlarged, the latter being cirrhosed, terminating in an extreme ascites. It appears to correspond with the condition recently described as Egyptian splenomegalia. Sequestrotomy of one or both jaws for necrosis was performed nine times, a considerable proportion out of 2734 patients. The authors attribute the frequency to the anæmic sequela of chronic malaria rendering the patients especially susceptible to septic infection from the teeth. Formidable as the operation appears, they regard it as extremely simple and safe, and on more than one occasion they have subperiosteally resected the whole of the necrosed lower jaw on both sides from within the mouth at one operation. Surgery, even in its simplest form, is practically unknown to the Chinese doctors in that region, all surgical cases being treated by the application of caustics, causing ulceration of the skin—a serious complication in the cases that reach the hospital. Abdominal operations were 70 in number, mostly gynæcological or obstetrical, but in one case a bamboo chopstick, 10 inches long, was removed from the stomach and duodenum with an excellent result. Eight ileo-colic anastomoses for chronic irreducible intussusceptions suggest a case-incidence rare indeed in Western lands. The cause of the trouble seems to have been the presence of tuberculous masses in the cæcum. In discussing the use of salvarsan the authors relate a very suggestive case—one of extreme dyspnœa from syphilitic laryngitis, which would formerly have been submitted to tracheotomy on admission. An injection of salvarsan was given instead, and in a few hours "the case completely cleared up and the patient left with a healthy and intact larynx." There were two deaths, however, which are believed to have been the results of the injection itself. They are attributed to the use of tubes bought from a local Japanese firm, for all the other cases treated with this particular batch exhibited abnormal symptoms. Altogether this report is very interesting, and it is to be hoped that Dr. Maxwell and Dr. Gushue-Taylor will be able to continue and expand their tentative publication, and that other missionary hospitals in remote places, where diseases must often appear under strange guises and in exaggerated forms, will follow their praiseworthy example.

"THE OYSTER SUPPLY."

"D. T. B." writes to us to point out that the problem of preventing in all tidal rivers and estuaries the oyster beds being contaminated by sewage emptied into rivers is impossible, in his opinion. "Remedy will only be partial," he says, "while wholesale discharges of sewers are allowed to be made into the sea from coast towns. Sewage is like oil, and simply floats on the surface of sea-water for hours before it is absorbed or assimilated, so that directly the tide ebbs and falls the sewage drifts into the rivers and gets deposited on the mud banks. The question is truly national as shown by the waste of valuable material for the land and the spoiling of food for the people."

THE MEDICAL GOLFING SOCIETY.

THE annual tournament of this society will be held on Thursday, June 5th, at Oxhey, near Watford, Herts, by kind invitation of Oxhey Golf Club. Anyone on the Medical or Dental Registers can join by payment of the annual subscription of 5*s.*, which includes entrance to the tournament. Cards may be handed in till 6.30 P.M. Play will be as follows: 18 holes match play *v.* bogey under handicap. Class 1, handicaps 10 and under. Class 2, handicaps over 10. Handicap limit 18. The "Henry Morris" Challenge Cup and the Medical Golfing Society's gold medal will be awarded for the best return under handicap. A first and second prize and a prize for the best *last* nine holes will be given in each class. A foursome sweepstake will be arranged in the afternoon. Players must send subscription and entry with lowest club handicap on or before Monday, June 2nd, to Mr. L. Eliot Creasy, M.R.C.S., honorary secretary and treasurer, Medical Golfing Society, 36, Weymouth-street, London, W. In addition to the above a week-end meeting of the Medical Golfing Society will be held at Le Touquet Golf Links the last week-end in June. First-class week-end ticket from Charing Cross, 30*s.* Members can leave London on Saturday afternoon, play two rounds on Sunday, and return Sunday night, arriving Charing Cross 10.45 P.M. The Golf Hotel at Le Touquet, adjoining the first tee, has arranged to take members *en pension* at 16 francs per day.

ESPERANTO.

THE Swiss Esperanto Medical Association has sent an invitation to the Universal Esperanto Medical Association, asking that the annual congress of the latter be held in Bern during the Ninth International Esperanto Congress. This will commence on August 24th next, and the University authorities have granted the use of the University buildings for the purpose. The invitation has been accepted. There will be one or two meetings of the Universal Esperanto Medical Association during the Seventeenth International Medical Congress in London.

THE SOUTH SEAS ON THE KINEMATOGRAPH.

THOSE who are fond of travel in generally unknown regions will find not a little of interest in the matinée kinematograph displays at the Victoria Palace, Victoria-street, S.W., of the "Wonders of the South Seas," which constitute a moving picture record of Mr. Jack London's four years' voyage in the *Snark*. They show scenes and incidents in the Hawaiian Islands, the Marquesas and Samoa, Fiji, the New Hebrides and the Solomon group, the Sulu Archipelago and New Guinea, Borneo, Sumatra, Java, and New Zealand. There is much of anthropological interest in the display.

THE annual meeting of the Children's Fresh Air Mission will be held in Staple Inn Hall, Holborn, W.C., by kind permission of the Institute of Actuaries, on Wednesday next, April 30th, at 3.30 P.M., Sir William H. Dunn presiding.

ARRANGEMENTS have now been completed for the celebration in London of the British Pharmaceutical Conference. There will be a reception at the Guildhall on July 21st, and scientific meetings and excursions have been arranged for the three following days.

Mersey inquires for the names and addresses of the publishers of any satisfactory text-books in English, French, or German dealing with Swedish remedial exercises suitable for medical men or those desirous of giving some study to the matter. The particular point of interest is the treatment of slighter cases of lateral curvature of the spine, also kyphosis and flat foot, knock-knee, and weak ankles; also suitable exercises for children with hemiplegia and infantile paralysis affecting various parts of the body.

L.R.C.P. Ed.—The decision of the Royal College of Physicians of London was published in THE LANCET of Dec. 21st, 1912, p. 1742. The newspaper cutting sent by our correspondent is not quite accurate.

F.—We can only answer such questions when they are forwarded by the patient's medical adviser.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 23rd, 1913.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
April 17	29·55	S.W.	...	99	55	40	41	45	Cloudy
" 18	29·67	S.W.	0·11	89	54	40	44	45	Overcast
" 19	29·48	S.W.	0·14	107	56	45	48	51	Cloudy
" 20	29·93	W.	...	107	57	40	47	50	Fine
" 21	29·87	S.	0·03	99	60	42	49	51	Overcast
" 22	29·97	E.	0·09	95	63	51	52	53	Overcast
" 23	30·08	E.	...	108	64	48	49	53	Fine

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Prof. E. H. Griffiths and Mr. E. Griffiths: The Capacity for Heat of Metals at Different Temperatures.—Mr. A. Robertson and Mr. G. Cook: The Transition from the Elastic to the Plastic State in Mild Steel (communicated by Prof. J. E. Petavel).—Mr. F. P. Worley: Studies of the Processes Operative in Solutions. XXVIII., The Influence of Acids on the Rotatory Power of Cane Sugar, of Glucose, and of Fructose (communicated by Prof. H. E. Armstrong).—Mr. H. G. J. Moseley: The Attainment of High Potentials by the Use of Radium (communicated by Prof. Rutherford).—Mr. R. Marsden and Dr. T. S. Taylor: The Decrease in Velocity of α Particles in Passing Through Matter (communicated by Prof. Rutherford).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY.

SPECIAL MEETING OF FELLOWS OF THE SOCIETY: at 5 P.M.

Discussion:

On Alimentary Toxæmia: its Sources, Consequences, and Treatment. (Fourth Meeting.)

The discussion will be re-opened by Dr. William Hunter, and continued by Sir Bertrand Dawson, K.C.V.O., Dr. E. Mellanby, Dr. Ettie Sayer, Dr. Sim Wallace, Dr. Bezly Thorne, Dr. Adamson, Dr. R. Murray Leslie, Mr. Lewin Payne, Dr. L. Wainwright, and Dr. R. Ackerley.

The Fifth Meeting will be held on Monday, May 5th, at 5 P.M., and the Sixth Meeting on Wednesday, May 7th, at 5 P.M.

SECTION OF ODONTOLOGY (Hon. Secretaries—Stanley P. Mummery, Robert McKay): at 8 P.M.

Casual Communication:

Mr. Warwick James: The Cure of Mouth-breathing.

Paper:

Professor Arthur Keith, F.R.S.: The Teeth of the Earlier Forms of Prehistoric Man.

TUESDAY.

SECTION OF MEDICINE (Hon. Secretaries—Robert Hutchison, H. Batty Shaw): at 8.30 P.M.

SPECIAL MEETING.

The President, Dr. Frederick Taylor, in the chair.

Dr. Gustave Monod (Vichy) will demonstrate on the Cinematograph the Possibilities of Teaching Biology with the Help of the Cinematograph, and among other things will show: (1) Heart in Action; (2) New Method of Demonstrating Heart Action by Cardiograms—i.e., "*Animated*" Diagrams; (3) Circulation of the Blood; (4) Digestion of Albumin, Fibrin, Starch; (5) Development, Fecundation, and Segmentation of Cells.

N.B.—All Fellows and Members of other Sections are cordially invited to be present.

THURSDAY.

SECTION OF OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—W. W. H. Tate, T. W. Eden): at 8 P.M.

Annual Meeting.—Election of Officers and Council for Session 1913-1914.

Specimens:

Professor Munro Kerr: (1) Second Case of Ovarian Pregnancy; (2) Ruptured Rudimentary Gravid Horn.

Dr. C. E. Purslow: Round-celled Sarcoma of Ovary with Broad Ligament Cyst.

Dr. R. D. Maxwell: Vaginal Clamp for Wertheim's Operation.

Dr. Tate: Tubo-ovarian Cyst with Intra-cystic Malignant Papilloma.

Short Communications:

Dr. Napier Burnett: Placenta and Membranes, showing Bacterial Infection of the Chorion.

Dr. Arnold Lea: Case of Puerperal Venous Thrombosis occurring after a Normal Labour.

Dr. Russell Andrews: An Unusual Case of Rupture of the Uterus.

FRIDAY.

SECTION OF LARYNGOLOGY (Hon. Secretaries—Dan McKenzie, E. A. Peters): at 4.30 P.M.

Annual Meeting.—Election of Officers and Council for Session 1913-1914.

Discussion on Recurrent Paralysis:

Opened by Dr. de Havilland Hall, Sir David Ferrier, and Dr. W. Permewan.

The following will show cases or join in the discussion:—The President (Mr. Herbert Tilley), Sir Felix Semon, Dr. Donelan, Dr. William Hill, Dr. P. Watson-Williams, Mr. E. D. Davis, Mr. T. Guthrie, and others.

CLINICAL SECTION (Hon. Secretaries—Charles H. Fagge, W. Essex Wynter): at 8.30 P.M.

Annual Meeting—Election of Officers and Council for Session 1913-1914.

Demonstration of Cases.

Paper:

Mr. R. J. Pye-Smith: A Case of Arsenic Cancer.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M., Discussion on the Treatment of Arterio-Sclerosis and High Tension (introduced by Dr. F. de H. Hall). Followed by Sir Lauder Brunton, Bart., Dr. S. West, Dr. B. Thorne, Dr. A. P. Luff, Dr. H. French, Dr. W. Armstrong, Dr. F. W. Price, Dr. O. K. Williamson, and Dr. A. Mantle.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY.—8 P.M., Dr. D. Sommerville: Antiseptics and Disinfectants:—II., Chemical Substances used as Antiseptics and Disinfectants—Their Composition and Mode of Action. (Cantor Lecture.)

WEDNESDAY.—8 P.M., Dr. F. G. Ogilvie: The Science Museum.

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Clinical Meeting.

CHILD STUDY SOCIETY, LONDON, Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

THURSDAY.—7.30 P.M., Discussion on the Parent and the Adolescent (opened by Mrs. C. Brereton and Mr. C. B. Andrews).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY.—5 P.M., Mr. Shattock: Specimens illustrating Lipomata. (Museum Demonstration.)

FRIDAY.—5 P.M., Prof. Keith: Specimens illustrating the Formation of Peritoneal Adhesions and Bands Before and After Birth. (Museum Demonstration.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. A. M. H. Gray: Clinique (Skin). 5.15 P.M., Lecture:—Dr. W. Hill: On Decompression of Pituitary Tumours by the Nasal Route (lantern demonstration).

TUESDAY.—4 P.M., Dr. H. L. Tidy: Clinique (Medical). 5.15 P.M., Lecture:—Dr. S. A. Owen: Enlargement of the Heart in Childhood.

WEDNESDAY.—4 P.M., Sir A. Pearce Gould, K.C.V.O.: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. A. F. Voelcker: Tetany in Childhood.

THURSDAY.—4 P.M., Mr. P. Turner: Clinique (Surgical). 5.15 P.M. Lecture:—Dr. F. L. Golla: The Organic Basis of Functional Neuroses.

FRIDAY.—4 P.M., Mr. A. MacNab: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Diseases of Women. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Diseases of the Eye.

TUESDAY.—10 A.M., Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Diseases of the Throat, Nose, and Ear. 2.30 P.M., Diseases of the Skin

WEDNESDAY.—10 A.M., Diseases of Children. Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Diseases of the Eye. Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. Orthopædics. 2.30 P.M., Diseases of the Eye.

FRIDAY.—10 A.M., Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Diseases of the Throat, Nose, and Ear. 2.30 P.M., Diseases of the Skin.

SATURDAY.—10 A.M., Diseases of Children. Operations of the Throat, Nose, and Ear. Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—Out-patient Demonstrations:—10 A.M. Dr. Singer: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2.15 P.M., Mr. W. Turner: Surgery. 3 P.M., Mr. W. Turner: Operations. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4.15 P.M., Mr. R. Lake: Ear and Throat.

TUESDAY.—Out-patient Demonstrations:—10 A.M., Dr. G. Holmes: Medical. Mr. Cole: Surgical. 12 noon, Dr. H. MacCormac: Skin.—2 P.M., Mr. L. McGavin: Operations. 2.15 P.M., Mr. R. Carling: Surgery. 3.15 P.M., Dr. G. Rankin: Medicine. 4.15 P.M., Sir Malcolm Morris: Skin. 2.15 P.M., Special Lecture:—Mr. R. Carling: Cranial Injuries.

WEDNESDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Surgical. 11 A.M., Mr. R. E. Bickerton: Eye.—2 P.M., Mr. L. V. Cargill or Mr. Choyce: Operations. Dr. A. Davies: Pathological Demonstration. 2.15 P.M., Dr. F. Taylor: Medicine. 3.15 P.M., Mr. Cargill: Eye Clinique. 4.30 P.M., Mr. C. C. Choyce: Surgery. 4.30 P.M., Special Lecture:—Dr. J. Taylor: Ocular Paralysis in Nervous Disease.

THURSDAY.—Out-patient Demonstrations:—10 A.M., Dr. Singer: Medical. Mr. H. Curtis: Surgical. 12 noon, Mr. G. N. Biggs: Throat, Nose, and Ear.—2 P.M., Mr. R. Carling or Mr. W. Turner: Operations. 3.15 P.M., Dr. R. Wells: Medicine. 4.30 P.M., Special Lecture:—Mr. J. Cantlie: Some Hepatic Tropical Ailments.

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SATURDAY.—Out-patient Demonstrations: 10 A.M., Dr. F. Langmead: Medical. Surgical. 11 A.M., Mr. R. E. Bickerton: Eye.—10 A.M., Radiography.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY AND FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. K. Wilson: The Clinical Importance of the Sympathetic Nervous System.

QUEEN'S HOSPITAL FOR CHILDREN, Board Room of the Hospital, Hackney-road, N.E.

MONDAY.—4 P.M., Dr. E. Pritchard: Some Common Disorders of Nutrition in Infancy.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

TUESDAY.—6 P.M., Dr. J. L. Bunch: Hereditary Syphilis and its Treatment.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

TUESDAY.—3 P.M., Prof. W. Stirling: Recent Physiological Inquiries—(1) Motion and Locomotion.

FRIDAY.—9 P.M., Mr. H. G. Plimmer: Blood Parasites.

ANCOATS HOSPITAL, Manchester.

THURSDAY.—4.15 P.M., Dr. C. H. Melland: Pernicious Anæmia. (Post-Graduate Clinic.)

For further particulars of the above Lectures, &c., see Advertisement Pages.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for 1913:—

April 26th–Nov. 5th (Ghent).—International Exhibition.
May 5th–8th (London, Caxton Hall).—Parents' National Educational Union, Seventeenth Annual Conference.
" 15th–18th (Paris).—Twenty-first Annual Congress of the Royal Institute of Public Health.
May–October (Leipzig).—First International Building Exhibition.
" " (London, Crystal Palace).—Anglo-German Exhibition.
June 24th–27th (London, Ontario).—Canadian Medical Association.
" 30th and July 1st (London, Guildhall).—Conference on Diet, Cookery, and Hygiene in Elementary Schools and Institutions.
July 7th–12th (Exeter).—Twenty-eighth Congress of the Royal Sanitary Institute.
" 16th–18th (Oxford, Keble College).—Oxford Ophthalmological Congress.
" 21st–24th (London).—British Pharmaceutical Conference.
" 22nd–25th (Brighton).—Eighty-first Annual Meeting of the British Medical Association.
Aug. 1st–3rd (Ghent).—Congress against the Adulteration and Deterioration of Foodstuffs.
" 4th and 5th (London, Caxton Hall).—English-speaking Conference on Infant Mortality.
" 6th–12th.—(London).—Seventeenth International Congress of Medicine.
" 20th–26th (Ghent).—Third International Congress of Neurology and Psychiatry.
Sept. 2nd–6th (Groningen).—International Physiological Congress.
" 9th–13th (Vienna).—Second International Congress of Life Saving and Prevention of Accidents.
" 10th–17th (Birmingham).—British Association.
" 22nd–28th (Milan).—Fourteenth International Anti-alcoholic Congress.
(London).—Historical Medical Exhibition. (Organised by Mr. Henry S. Wellcome.)
(London, Earl's Court).—Imperial Services Exhibition.
(Chicago).—Congress of the International Association of Refrigeration.
(Washington).—Congress of American Physicians and Surgeons.
(Buffalo).—Fourth International Congress of School Hygiene.

In 1914:—
May 1st–Nov. 1st (Lyons).—International Town Life Exhibition.
Aug. 10th–15th (St. Petersburg).—Twelfth International Congress of Ophthalmology.
(London).—Anglo-American Exhibition.
(Vienna).—Third International Congress for Professional Diseases.
(Auckland, N.Z.).—Australasian Medical Congress.
(St. Petersburg).—Third Mendeléeff Congress of Pure and Applied Chemistry and Physics.
(Washington, D.C.).—International Congress of Americanists.
(London).—International Dental Congress.
(Paris).—Fourth International Medical Congress on Industrial Accidents.

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